



DBUGVF's

## **Rajarshi Shahu College of Pharmacy, Buldana**

(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)



**CO-PO mapping for all B. Pharmacy Course subjects**



DBUGVF's

**Rajarshi Shahu College of Pharmacy, Buldana**  
(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

**Semester-I**

**Subject: Human Anatomy and Physiology I – Theory**

**Subject Code: BP101T**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
CO 1	Explain the gross morphology, structure and functions of various organs of the human body
CO 2	To learn and acquire the knowledge of homeostatic mechanisms and their imbalances
CO 3	To study and identify the various tissues and organs of different systems along with their co-relation with human body.
CO 4	To gain, explore and update the knowledge of special senses and nervous system

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	1	2	2	1	1	2	1	3	1	3
CO2	3	1	2	1	2	2	2	1	2	2	2
CO3	3	2	1	1	2	1	1	1	1	2	3
CO4	3	1	1	1	1	2	1	1	2	1	3
Average	3.0	1.25	1.50	1.25	1.50	1.50	1.50	1.00	2.0	1.50	2.75
								Desired Attainment			1.70



  
**Principal**  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihir, Buldana.



DBUGVF's  
**Rajarshi Shahu College of Pharmacy, Buldana**  
(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

**Subject: Human Anatomy and Physiology I - Practical**

**Subject Code: BP107P**

<b>COURSE OUTCOMES</b>	<b>DESCRIPTION/STATEMENT</b>
<b>CO 1</b>	Identify various types of epithelial, muscular, connective and nervous tissue.
<b>CO 2</b>	Identify and understand concept of axial, appendicular skeleton and separate bone
<b>CO 3</b>	Expertise in collection of blood in subject to determination of values like bleeding and clotting time along with their significance in pathological conditions
<b>CO 4</b>	Estimation of hemoglobin content, determination of blood group, erythrocyte sedimentation rate (ESR) and their relevance in diseases
<b>CO 5</b>	Enumeration of hematological values like white blood cell (WBC) count and total red blood corpuscles (RBC) count through various methods.

	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	<b>PO9</b>	<b>PO10</b>	<b>PO11</b>
<b>CO1</b>	3	2	1	2	1	3	3	1	3	1	3
<b>CO2</b>	3	2	1	1	2	3	3	3	3	1	3
<b>CO3</b>	3	1	1	1	1	3	3	1	3	1	3
<b>CO 4</b>	3	2	1	1	1	3	3	1	3	1	3
<b>CO 5</b>	3	2	1	1	1	3	3	1	3	1	3
<b>Average</b>	3.0	1.67	1.0	1.17	1.17	3.0	3.0	1.50	3.0	1.17	3
								<b>Desired Attainment</b>			<b>2.06</b>



  
**Principal**  
**Rajarshi Shahu College of Pharmacy,**  
**Malvihir, Buldana.**



DBUGVF's  
**Rajarshi Shahu College of Pharmacy, Buldana**  
 (Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

**Subject: Pharmaceutical Analysis – Theory**

**Subject Code: BP102T**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
<b>CO1</b>	Understand the principles of volumetric titration, Calculation of Volumetric analysis, Chemical reaction and pH change during the titration.
<b>CO2</b>	Understand the principles of electro chemical analysis
<b>CO3</b>	Develop analytical skills
<b>CO4</b>	Understanding of the basic concepts of drug analysis

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	1	2	1	1	1	2	1	1	1	2
<b>CO2</b>	3	1	2	3	1	1	1	1	1	1	2
<b>CO3</b>	3	2	2	1	1	1	1	1	1	1	2
<b>CO4</b>	3	1	2	2	1	1	2	1	2	1	2
<b>Avg.</b>	3.00	1.25	2.00	1.75	1.00	1.00	1.50	1.00	1.25	1.00	2.00
								<b>Desired Attainment</b>			<b>1.52</b>

**Subject: Pharmaceutical Analysis – Practical**

**Subject Code: BP108P**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
<b>CO1</b>	Student shall able to state principles of volumetric and electrochemical analysis
<b>CO2</b>	Student shall able to prepare various concentrations of solutions (Molar/Normal)
<b>CO3</b>	Student shall able to carry out various volumetric and electrochemical titrations
<b>CO4</b>	Student shall able to have analytical skills as mentioned in syllabus



Principal  
 Principal  
 Rajarshi Shahu College of Pharmacy,  
 Malvihir, Buldana.



DBUGVF's

## Rajarshi Shahu College of Pharmacy, Buldana

(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	3	1	1	2	2	1	3	3	3
CO2	3	1	1	1	1	3	2	3	3	2	3
CO3	3	1	2	1	1	2	2	1	3	3	3
CO4	3	1	1	1	1	3	2	2	3	3	3
Average	3	1.25	1.75	1	1	2.50	2	1.75	3	2.75	3
								Desired Attainment			2.09

**Subject: Pharmaceutics I – Theory**

**Subject Code: BP103T**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
CO 1	Students shall be able to understand the basic concept, history of Pharmacy in India. Also will be able to understand the Pharmacopoeia, various dosage forms, information about prescription and posology means calculation of doses.
CO 2	In this course, students will be able to understand the concept of various systems of calculation of dose, solvents/solution, isotonic solution, freezing point etc. Also students should be well aware about the powder and liquids dosage form
CO 3	Students shall understand about various Monophasic and Biphasic liquids. Students will know abouts the methods of preparation of Gargles, Mouthwashes, Throat Paint, Eardrops, Nasal drops, Enemas, Syrups, Elixirs, Liniments, Lotions, Suspensions and Emulsion.
CO 4	Students shall be able to understand the about the suppositories, displacement value & its calculations. Also students will be able to understand types Pharmaceutical incompatibilities.
CO 5	After completion of this chapter, students will understand about various ointment bases, excipients and methods of preparation and evaluation tests of semisolids



*[Signature]*  
Principal  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihiir, Buldana.



DBUGVF's

## Rajarshi Shahu College of Pharmacy, Buldana

(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	2	1	1	2	2	2	2	2	2	2	3
CO2	3	2	2	2	3	2	2	3	2	2	2
CO3	3	2	2	3	3	3	3	3	2	2	3
CO4	3	3	2	3	2	3	3	2	3	2	2
CO5	3	3	3	3	3	2	3	3	2	3	3
								Desired Attainment			2.44

**Subject: Pharmaceutics I Practical**

**Subject Code: BP109P**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
CO 1	Students should know about the formulation aspects of various dosage forms like syrups, elixirs and linctus.
CO 2	Should be able to understand the procedure and various excipients used in liquid dosage forms.
CO 3	Students should able to calculate the quantities of ingredients and packaging of powder like ORS powder (WHO), Effervescent granules, Dusting powder and Divided powders.
CO 4	Students will be able to understand various semisolid bases and the methods of manufacturing of ointments and suppositories. Also should know about the gargles in throat infection.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	1	3	2	1	1	1	1	3	1	3
CO2	3	2	3	2	1	1	2	1	2	1	2
CO3	3	1	1	1	2	1	1	1	1	1	1
CO4	3	1	1	1	1	2	1	2	1	2	3
Average	3.0	1.25	2.0	1.5	1.25	1.0	1.5	1.0	2.0	1.5	2.25
								Desired Attainment			1.66



Principal  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihi, Buldana.



DBUGVF's

**Rajarshi Shahu College of Pharmacy, Buldana**  
(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

**Subject: Pharmaceutical Inorganic Chemistry (PIC) Theory**

**Subject Code: BP104T**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
<b>CO 1</b>	Explain the sources of impurities and methods to determine the impurities in inorganic drugs and pharmaceuticals
<b>CO 2</b>	Understand method of preparation, physical and chemical properties, medicinal and pharmaceutical importance of inorganic compounds.
<b>CO 3</b>	Acquire the knowledge of acids, bases and buffers
<b>CO 4</b>	Describe the medicinal and pharmaceutical importance of Radiopharmaceuticals

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	2	3	1	1	2	2	1	3	3	3
<b>CO2</b>	3	1	1	1	1	3	2	3	3	2	3
<b>CO3</b>	3	1	2	1	1	2	2	1	3	3	3
<b>CO4</b>	3	1	1	1	1	3	2	2	3	3	3
Average	3	1.25	1.75	1	1	2.50	2	1.75	3	2.75	3
								<b>Desired Attainment</b>			<b>2.09</b>

**Subject: Pharmaceutical Inorganic Chemistry (PIC) Practical**

**Subject Code: BP110P**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
<b>CO 1</b>	Perform the procedure/method for identifying impurities in pharmaceuticals.
<b>CO 2</b>	Explain the procedure for identification of inorganic compounds and their purities.
<b>CO 3</b>	Understand the method of preparation of inorganic pharmaceuticals



*[Signature]*  
**Principal**  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihi, Buldana.



DBUGVF's

## Rajarshi Shahu College of Pharmacy, Buldana

(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	3	1	1	3	1	1	3	3	3
CO2	3	2	3	1	1	3	1	1	3	3	3
CO3	3	2	3	1	1	2	1	1	2	3	3
Average	3	2	3	1	1	2.67	1	1	2.67	3	3
								Desired Attainment			2.12



  
Principal  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihir, Buldana.





DBUGVF's  
**Rajarshi Shahu College of Pharmacy, Buldana**  
 (Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

**Semester-II**

**Subject: Human Anatomy and Physiology II– Theory**

**Subject Code: BP 201T**

COURSE OUTCOME	DESCRIPTION/STATEMENT
<b>CO1</b>	To understand the gross morphology, structure and functions of various organs of the human body.
<b>CO2</b>	To learn the basis of various homeostatic mechanisms and their imbalances
<b>CO3</b>	To identify the various tissues and organs of different systems of human body.
<b>CO4</b>	To acquire knowledge about hematological tests like blood cell counts, haemoglobin estimation, bleeding/clotting time etc and also record blood pressure, heart rate, pulse and respiratory volume along with its rationale
<b>CO5</b>	To understand and analyze the co-ordinated working pattern of different organs system.
<b>CO6</b>	To gained the knowledge about interlinked mechanisms in the maintenance of normal functioning (homeostasis) of human body.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	1	3	2	1	1	1	1	3	1	3
<b>CO2</b>	3	2	3	2	1	1	2	1	2	1	2
<b>CO3</b>	3	1	1	1	2	1	1	1	1	1	1
<b>CO4</b>	3	1	1	1	1	2	1	2	1	2	3
<b>CO5</b>	3	2	3	2	1	1	2	1	2	1	2
<b>CO6</b>	3	1	3	2	1	1	1	1	3	1	3
Average	3.0	1.25	2.0	1.5	1.25	1.0	1.5	1.0	2.0	1.5	2.18
								<b>Desired Attainment</b>			<b>1.86</b>



Principal  
 Principal  
 Rajarshi Shahu College of Pharmacy,  
 Malvihir, Buldana.



DBUGVF's

**Rajarshi Shahu College of Pharmacy, Buldana**  
(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)


**Subject: Human Anatomy and Physiology II– Practical**

**Subject code: BP 207P**

<b>COURSE OUTCOME</b>	<b>DESCRIPTION/STATEMENT</b>
<b>CO1</b>	Able to learn the anatomy and physiology of organs of digestive system like salivary glands, stomach, intestine, pancreas and liver and process of Carbohydrate, Protein and Fat digestion and absorption.
<b>CO2</b>	Understand the Organization and functions of brain, Spinal cord, afferent and efferent nerves.
<b>CO3</b>	Perform the anatomy and physiology of urinary system, structure of Nephron, formation of urine, mechanism of micturition and regulation of body fluid volume
<b>CO4</b>	Identify the Physiology of hormones of hypothalamus-pituitary gland, adrenal gland, thyroid gland, pancreas and gonads (testis and ovary).
<b>CO5</b>	Able to learn the anatomy and functions of organs of respiratory system, exchange of respiratory gases, transport of respiratory gases, regulation of respiration, respiratory volumes and vital capacity.
<b>CO6</b>	Explain the Anatomy and physiology of reproductive organs, pregnancy.

	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	<b>PO9</b>	<b>PO10</b>	<b>PO11</b>
<b>CO 1</b>	3	2	2	3	1	2	-	1	2	-	3
<b>CO 2</b>	3	2	2	2	1	1	-	1	2	-	3
<b>CO 3</b>	3	2	3	2	1	1	-	1	3	-	3
<b>CO 4</b>	3	3	2	2	1	1	-	1	1	-	3
<b>CO 5</b>	3	2	2	2	1	1	-	1	3	-	3
<b>CO 6</b>	3	2	2	2	1	1	-	1	1	-	3
<b>Average</b>	3.00	2.17	2.17	2.17	1.00	1.17	-	1.00	2.00	-	3.00
								<b>Desired Attainment</b>			<b>1.96</b>



  
**Principal**  
**Rajarshi Shahu College of Pharmacy,**  
**Malvihir, Buldana.**



DBUGVF's

**Rajarshi Shahu College of Pharmacy, Buldana**  
(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

**Subject: Pharmaceutical Organic Chemistry-I (POC-I) Theory**

**Subject Code: BP202T**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
CO 1	Describe the classification of organic compounds and write the structure, name and the type of isomerism of the organic compounds
CO 2	Explain hybridization in alkanes, alkenes and alkynes, and stabilities in alkene and conjugated dines
CO 3	Acquire knowledge about preparation, reactivity, properties and uses of compounds with functional groups, such as alkyl halides, alcohols, aldehydes, ketones, carboxylic acids, and amines
CO 4	Explain the mechanism involved in the substitution, addition, nucleophilic and elimination reactions

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	1	2	2	1	3	1	2	2	1	3
CO2	3	1	2	2	1	3	1	2	2	1	3
CO3	3	2	2	2	1	3	1	2	2	1	3
CO4	3	1	3	2	1	3	1	2	1	1	3
Average	3.00	1.25	2.25	2.00	1.00	3.00	1.00	2.00	1.75	1.00	3.00
								Desired Attainment		1.93	

**Subject: Pharmaceutical Organic Chemistry-I (POC-I) Practical**

**Subject Code: BP208P**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
CO 1	Acquire knowledge of, and training in systematic qualitative analysis of unknown organic compounds.
CO 2	Acquire knowledge of, and training in Identification of the unknown compound from the literature using melting point/ boiling point.
CO 3	Learn and understand the method of preparation of suitable solid derivatives from organic compounds



*[Signature]*  
Principal  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihi, Buldana.



DBUGVF's

## Rajarshi Shahu College of Pharmacy, Buldana

(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	3	1	1	2	1	2	2	2	3
CO2	3	2	3	1	1	2	1	2	2	2	3
CO3	3	1	1	1	1	2	1	2	2	2	3
Average	3	1.67	2.33	1	1	2	1	2	2	2	3
								Desired Attainment			1.91

**Subject: Biochemistry- Theory**

**Subject Code: BP203T**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
CO1	Student will be able to Classify & explain the chemical nature & biological role of bio-molecules & also Identify the concepts of bioenergetics included in the syllabus
CO2	Student will be able to Describe the metabolic pathways for nutrient molecules in physiological and pathological condition given in the syllabus
CO3	Student will be able to Explain the Biological Oxidation process & Describe the metabolic pathways for lipid metabolism, their biological significance & disorders included in the syllabus
CO4	Student will be able to Describe the amino acid metabolism& Outline the genetic organization of mammalian genome and functions of DNA in the synthesis of RNAs and proteins
CO5	Student will be able to State the Biosynthesis of purine ,pyrimidine nucleotides & Catabolism of purine nucleotides
CO6	Student will be able to Explain the catalytic role of enzymes, importance of enzyme inhibitors in design of new drugs, therapeutic and diagnostic applications of enzymes



*[Signature]*  
Principal  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihiir, Buldana.



DBUGVF's  
**Rajarshi Shahu College of Pharmacy, Buldana**  
 (Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	2	2	2	3	1	2	2	1	1	2
<b>CO2</b>	3	2	3	2	2	3	2	2	2	2	2
<b>CO3</b>	3	2	3	2	2	2	1	3	2	2	2
<b>CO4</b>	3	3	3	2	3	2	2	2	2	2	2
<b>CO5</b>	3	2	3	2	2	2	1	2	2	2	2
<b>CO6</b>	3	2	3	3	3	2	1	2	2	2	2
<b>AVG</b>	3.00	2.17	2.83	2.17	2.50	2.00	1.50	2.17	1.83	1.83	2.00
								<b>Desired average</b>			2.18

**Subject: Biochemistry Practical**

**Subject Code: BP209P**

<b>COURSE OUTCOMES</b>	<b>DESCRIPTION/STATEMENT</b>
<b>CO1</b>	Student will be able to Recognize the class of biomolecules & reducing sugars given in the syllabus by qualitative analysis of the unknown sample
<b>CO2</b>	Student will be able to Identify the types of Protein present in the unknown sample
<b>CO3</b>	Student will be able to Predict the amount of essential components present in the given sample of blood mentioned in the syllabus
<b>CO4</b>	Student will be able to Describe the methods of preparation of buffers of different pH & their measurement
<b>CO5</b>	Student will be able to Study the Enzymatic Hydrolysis of starch
<b>CO6</b>	Student will be able to Estimate the effect of Temperature, substrate concentration on salivary amylase activity



Principal  
**Principal**  
 Rajarshi Shahu College of Pharmacy,  
 Malvihir, Buldana.



DBUGVF's  
**Rajarshi Shahu College of Pharmacy, Buldana**  
 (Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	3	2	2	3	1	3	2	2	3	3
<b>CO2</b>	3	2	3	2	3	2	3	2	2	3	2
<b>CO3</b>	3	3	2	2	3	1	3	2	2	3	3
<b>CO4</b>	3	2	3	2	3	2	3	2	2	3	2
<b>CO5</b>	3	3	2	2	3	1	3	2	2	3	3
<b>CO6</b>	3	2	3	2	3	2	3	2	2	3	2
<b>Average</b>	3.00	2.50	2.50	2.00	3.00	1.50	3.00	2.0	2.0	3.00	2.50
								<b>Desired Average</b>			<b>2.45</b>

**Subject: Pathophysiology – Theory**

**Subject Code: BP 204T**

<b>COURSE OUTCOMES</b>	<b>DESCRIPTION/STATEMENT</b>
<b>CO 1</b>	Describe the etiology and pathogenesis of the selected disease states
<b>CO 2</b>	Understand the signs and symptoms of the diseases
<b>CO 3</b>	To learn and acquire the knowledge about basic mechanism of cell injury, adaptation and inflammation process
<b>CO 4</b>	To understand the complications of diseases /disorders

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	1	3	2	1	1	1	1	3	1	3
<b>CO2</b>	3	2	3	2	1	1	2	1	2	1	2
<b>CO3</b>	3	1	1	1	2	1	1	1	1	1	1
<b>CO4</b>	3	1	1	1	1	2	1	2	1	2	3
<b>Average</b>	3.0	1.25	2.0	1.5	1.25	1.0	1.5	1.0	2.0	1.5	2.25
								<b>Desired Attainment</b>			<b>1.66</b>



Principal  
 Principal  
 Rajarshi Shahu College of Pharmacy,  
 Malvihiir, Buldana.



DBUGVF's

## Rajarshi Shahu College of Pharmacy, Buldana

(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

**Subject Code: Environmental Sciences– Theory**

**Subject Code: BP206T**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
CO 1	Student should able to explain basics of environment like ecology, ecosystem, food chain, food web and ecological pyramids
CO 2	Student should able to describe list natural resources and explain their conservation
CO 3	Student should able to describe the current problems of environment and how to solve them, role of individual in conservation of environment.
CO 4	student should able to understand and identify the different types of environmental pollution and measures to minimize it
CO 5	Student should able to understand and explain the concept of ecosystem, structure, function of forest ecosystem, grass ecosystem, desert ecosystem & aquatic ecosystem.
CO 6	Student should able to understand the components of Ecosystem and Energy flow within it.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3		2	2					2	2	
CO2	2	3	1	3					1	2	
CO3	2		3	2		1			3	2	
CO4	2		2	3					2	2	
CO5	3	2	2	2					1		
CO6	2		3	3					1	3	
Avg.	2.33	2.5	2.17	2.5		1			1.5	2	
							Desired attainment			2	



*[Signature]*  
Principal  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihir, Buldana.





DBUGVF's

**Rajarshi Shahu College of Pharmacy, Buldana**  
(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

**Semester -III**

**Subject: Pharmaceutical Organic Chemistry II– Theory**

**Subject Code: BP301T**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
CO 1	Draw the structures and name the various organic compounds like benzene, phenols, aromatic amines aromatic acids etc.
CO 2	Explain the concepts of aromaticity of aromatic hydrocarbons.
CO 3	Understand and write the aromatic electrophilic reaction name and explain effect of substitution on orientation of aromatic electrophilic reactions.
CO 4	Explain the use of analytical constants in analysis of fats and oils
CO 5	Relate the reactivity and stability of cyclo alkanes.
CO 6	Understand and write the reaction, mechanism and outline the synthesis of benzene and its derivatives, phenols, aromatic amines and acids, polynuclear hydrocarbons and cycloalkanes like cyclopropane and cyclobutane

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	3	3	3	2	3	3	2	3	2	3
CO2	3	2	3	3	2	3	2	2	3	2	3
CO3	3	2	2	3	2	3	2	2	3	2	3
CO4	3	2	2	3	2	3	2	2	3	2	3
CO5	3	2	2	3	2	3	2	2	3	2	3
CO6	3	2	2	3	2	3	2	2	3	2	3
								Desired Attainment		2.52	



  
**Principal**  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihir, Buldana.





DBUGVF's

## Rajarshi Shahu College of Pharmacy, Buldana

(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

**Subject: Pharmaceutical Organic Chemistry II– Practical**

**Subject Code: BP305P**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
CO 1	Describe about the different mechanistic steps involved in synthesis of organic compounds like benzanilide, benzoic acid etc.
CO 2	Explain different purification methods like re-crystallization and steam distillation
CO 3	Understand to determine acid value, saponification value and iodine value.
CO 4	Explain the different reaction and mechanism involved in synthesis of organic compounds like acylation, bromination, nitration, oxidation, diazotization, hydrolysis, Claisen-Schmidt reaction and Perkin reaction.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	3	3	2	2	3	3	2	3	2	3
CO2	3	3	3	2	2	3	3	2	3	2	3
CO3	3	3	3	2	2	3	2	2	3	2	3
CO4	3	3	3	2	2	2	2	2	3	2	3
								Desired Attainment			2.57



  
Principal  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihi, Buldana.



**Subject: Physical Pharmacy – I - Theory**

**Subject Code: BP302T**

<b>COURSE OUTCOMES</b>	<b>DESCRIPTION/STATEMENT</b>
<b>CO 1</b>	Students shall be able to understand and describe the concept of solubility, mechanism behind solute-solvent interactions and predict the factors influencing solubility of the drugs.
<b>CO 2</b>	Students shall be able to identify different states of matter at different condition and understand certain physicochemical properties of the drug substances.
<b>CO 3</b>	Students shall be able to differentiate between surface and interface and identify surface and interfacial tension, classify and list different surface active agents and recall HLB scale.
<b>CO 4</b>	Students shall be able to classify and evaluate complexation, its application, and interpret methods of analysis.
<b>CO 5</b>	After completion of this topic, students will understand about Sorensens pH scale, pH determination applications of buffers in pharmaceutical and biological systems.

	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	<b>PO9</b>	<b>PO10</b>	<b>PO11</b>
<b>CO1</b>	2	1	1	2	2	2	1	2	3	2	2
<b>CO2</b>	2	1	2	3	2	3	2	3	2	2	3
<b>CO3</b>	2	2	3	3	3	3	2	3	3	1	2
<b>CO4</b>	2	2	3	1	2	3	2	1	2	3	3
<b>CO5</b>	3	2	3	2	2	2	3	2	3	2	2
								<b>Desired Attainment</b>		<b>2.22</b>	



  
**Principal**  
**Rajarshi Shahu College of Pharmacy,**  
**Malvihir, Buldana.**



DBUGVF's

## Rajarshi Shahu College of Pharmacy, Buldana

(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

**Subject: Physical Pharmacy – I Practical**

**Subject Code: BP306P**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
CO 1	Students shall be able to understand the concept of solubility, pKa value by Half Neutralization/ Henderson Hasselbalch equation and partition coefficient of substances.
CO 2	Students shall be able to understand critical solution temperature and can determined unknown concentration in CST. Also able to understand and evaluate surface tension by drop count and drop weight method.
CO 3	Students will understand about HLB, its scale and number of a surfactant and its applications. Also students will be well stood by Freundlich and Langmuir constants theory using activated charcoal
CO 4	Students shall understand about the concept of surfactants, its applications and critical micellar concentration of surfactants.
CO 5	Students shall understand stability constant and donor acceptor ratio of drug complex by solubility and pH titration method.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	2	1	1	2	2	2	1	2	3	2	2
CO2	2	1	2	3	2	3	2	3	2	2	3
CO3	2	2	3	3	3	3	2	3	3	1	2
CO4	2	2	3	1	2	3	2	1	2	3	3
CO5	3	2	3	2	2	2	3	2	3	2	2
								Desired Attainment			2.18



  
Principal  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihir, Buldana.



DBUGVF's  
**Rajarshi Shahu College of Pharmacy, Buldana**  
 (Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

**Subject: Pharmaceutical Microbiology – Theory**

**Subject Code: BP303T**

Course outcome	Description
<b>CO1</b>	Student will be able to recognize the different equipment useful for microbiology practical
<b>CO2</b>	Students will be able to explain the various sterilization technique useful for sterilization of glassware, loop, media etc.
<b>CO3</b>	Students will be able to prepare the nutritional requirement of microorganism.
<b>CO4</b>	Students will be able to perform cultivation and isolation of bacteria by different technique along with study zone of Inhibition

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	2	2	1	2	2	2	2	2	2	3
<b>CO2</b>	3	2	2	1	2	2	2	2	2	2	3
<b>CO3</b>	3	2	2	1	2	2	2	2	2	2	3
<b>CO4</b>	3	2	2	1	2	2	2	2	2	2	3
								<b>Desired Attainment</b>			2.09

**Subject: Pharmaceutical Microbiology – Practical**

**Subject Code: BP307P**

Course outcome	Description
<b>CO1</b>	Student understand methods of identification, cultivation and preservation of various microorganisms
<b>CO2</b>	Student know the importance and implementation of sterilization in pharmaceutical processing and industry
<b>CO3</b>	Able to perform sterility testing of pharmaceutical products.
<b>CO4</b>	Able to carry out microbiological standardization of Pharmaceuticals.
<b>CO5</b>	Able to understand the cell culture technology and its applications in pharmaceutical industries.



Principal  
 Principal  
 Rajarshi Shahu College of Pharmacy,  
 Malvihir, Buldana.



DBUGVF's

## Rajarshi Shahu College of Pharmacy, Buldana

(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	1	1	1	1	1	3	2	3	3	2	1
CO2	3	1	1	1	1	3	2	2	3	2	1
CO3	3	1	1	1	1	3	2	2	3	2	1
CO4	3	1	1	1	1	2	3	2	3	2	1
CO5	3	1	1	1	1	3	3	3	3	3	1
Avg	2.60	1.00	1.00	1.00	1.00	2.80	2.40	2.40	3.00	2.20	1.00
								Desired Attainment			1.85

**Subject: Pharmaceutical Engineering– Theory**

**Subject Code: BP304T**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
CO 1	My students should be able to explain various Unit Operation mentioned as per in syllabus
CO 2	My students should be able to demonstrate and operate various machines used in mentioned in syllabus
CO 3	My students should be able to explain the material handling techniques as mentioned in syllabus which will also help them in research and development.
CO 4	My students should be able to practice various steps to prevent environmental pollution
CO 5	My students should be able to recall and describe various process involved in manufacturing of pharmaceuticals .
CO 6	My students should be able to summarize about significance of plant-layout, corrosion and industrial hazards.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	1	2	2	2	2	2	2	2	2	2
CO2	3	1	2	2	2	2	2	2	2	2	2
CO3	3	1	2	2	2	2	2	2	2	2	2
CO4	3	1	2	2	2	2	2	2	2	2	2
CO5	3	1	2	2	2	2	2	2	2	2	2



Principal  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihiir, Buldana.



DBUGVF's

## Rajarshi Shahu College of Pharmacy, Buldana

(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

<b>CO6</b>	3	1	2	2	2	2	2	2	2	2	2
								<b>Desired Attainment</b>			<b>2</b>

**Subject: Pharmaceutical Engineering– Practical**

**Subject Code: BP308P**

<b>COURSE OUTCOMES</b>	<b>DESCRIPTION/STATEMENT</b>
<b>CO 1</b>	My students should be able to describe various unit operations used in pharmaceutical industries mentioned in syllabus
<b>CO 2</b>	My students should be able to explain and practice various process involved in process.
<b>CO 3</b>	My students should be able understand the application of various machines used in labs and industries mentioned in syllabus.
<b>CO 4</b>	My students should be able to identify and summarize the material handling techniques

	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	<b>PO9</b>	<b>PO10</b>	<b>PO11</b>
<b>CO1</b>	3	3	2	2	2	2	2	1	1	1	3
<b>CO2</b>	3	3	2	2	2	2	2	1	1	1	3
<b>CO3</b>	3	3	2	2	2	2	2	1	1	1	3
<b>CO4</b>	3	3	2	2	2	2	2	1	1	2	3
								<b>Desired Attainment</b>			<b>2</b>



  
Principal  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihir, Buldana.



**Semester-IV**

**Subject: Pharmaceutical Organic Chemistry III– Theory**  
**Subject Code: BP401T**

<b>COURSE OUTCOMES</b>	<b>DESCRIPTION/STATEMENT</b>
<b>CO 1</b>	Explain the concepts of stereo chemistry, their structural representation.
<b>CO 2</b>	Draw and compare the three dimensional structure of Lactic acid and tartaric acid
<b>CO 3</b>	Describe and classify stereo isomerism in optical isomers with R/S nomenclature, geometrical isomers with cis-trans and E/Z nomenclature, atropisomers and conformational isomers and discuss the stability of conformation of ethane, n-butane and cyclohexane
<b>CO 4</b>	Describe and classify, draw and name the structures of heterocyclic compounds under study
<b>CO 5</b>	Understand and draw the reactions of and outline the synthesis of heterocyclic compounds under study.
<b>CO 6</b>	Understand and draw the reactions and mechanism of various reactions of synthetic importance under study.

	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	<b>PO9</b>	<b>PO10</b>	<b>PO11</b>
<b>CO1</b>	3	2	2	2	1	2	1	2	3	2	3
<b>CO2</b>	3	2	2	2	1	2	1	2	3	2	3
<b>CO3</b>	3	2	2	2	1	2	1	2	3	2	3
<b>CO4</b>	3	2	2	2	1	2	1	2	3	2	3
<b>CO5</b>	3	2	2	2	1	2	1	2	3	2	3
<b>CO6</b>	3	2	2	2	1	2	1	2	3	2	3
								<b>Desired Attainment</b>		2.09	



  
**Principal**  
**Rajarshi Shahu College of Pharmacy,**  
**Malvihir, Buldana.**





DBUGVF's

## Rajarshi Shahu College of Pharmacy, Buldana

(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

**Subject: Medicinal Chemistry-I: – Theory**

**Subject Code: BP402T**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
<b>CO1</b>	Student shall able to memorize the different Physicochemical properties which affects biological action of drugs
<b>CO2</b>	Student will able to Understand drug metabolism and able to explain the factors affecting drug metabolism
<b>CO3</b>	Student will able to explain development , Classification, mechanism of action, uses of drugs acting on Autonomic Nervous system Also able to outline the Structure activity relationship, synthesis and biosynthesis of important drugs and neurotransmitters involve in ANS
<b>CO4</b>	Student will able to describe the Development, Classification mechanism of action, SAR, uses and synthesis of Sedatives and Hypnotics, Anti psychotics given in syllabus
<b>CO5</b>	Student will able to recognize the Development, Classification mechanism of action, SAR, uses and synthesis of, Anti-consultants and General anesthetics given in syllabus
<b>CO6</b>	student will able to Explain the Development, Classification mechanism of action, SAR, uses and synthesis of Narcotic, non-narcotic analgesics including Non-steroidalanti-inflammatory drugs mention in syllabus

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	1	3	3	1	2	2	2	2	1	3
<b>CO2</b>	3	1	3	1	1	3	3	1	3	1	3
<b>CO3</b>	3	1	3	3	1	3	3	1	3	1	3
<b>CO4</b>	3	1	3	3	1	3	3	1	3	1	3
<b>CO5</b>	3	1	3	3	1	3	3	1	3	1	3
<b>CO6</b>	3	1	3	3	1	3	3	1	3	1	3
Average	3.00	1.00	3.00	2.67	1.00	2.83	2.83	1.17	2.83	1.00	3.00
								<b>Desired Attainment</b>			<b>2.21</b>



Principal  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihir, Buldana.





DBUGVF's

## Rajarshi Shahu College of Pharmacy, Buldana

(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

**Subject: Medicinal Chemistry-I Practical**

**Subject Code: BP406P**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
CO1	Student will able to outline the procedure, principle, mechanism and documentation of synthesis of drugs and their intermediate given in syllabus
CO2	Student will able to describe the method for isolation, purification and characterization of drugs and intermediate given in syllabus
CO3	Student will able to perform the assay of drugs and their preparation by pharmacopoeial method for drugs given in syllabus
CO4	Student will capable to determine the partition coefficient of drugs given in syllabus

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	3	2	3	2	1	2	3	2	2	3
CO2	3	3	2	3	2	1	2	3	2	2	3
CO3	3	3	2	1	2	1	2	3	2	2	3
CO4	3	3	1	1	2	1	2	3	1	1	3
Average	3.00	3.00	1.75	2.00	2.00	1.00	2.00	3.00	1.75	1.75	3.00
								Desired Attainment		2.20	

**Subject: Physical Pharmaceutics II – Theory**

**Subject Code: BP403T**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
CO 1	My student should be able to explain complete information about the Colloidal Dispersion as per the syllabus
CO 2	My student should be able to explain Newtonian system, Non Newtonian system and Deformation of Solids at the completion of the syllabus
CO 3	My student should be able to summarize Coarse Dispersion and can demonstrate the preparation techniques and problem in the preparation of emulsion



Principal  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihi, Buldana.



DBUGVF's

## Rajarshi Shahu College of Pharmacy, Buldana

(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

<b>CO 4</b>	My student should be able to recall micromeritics and can employ powder characteristics and its evaluation techniques in designing of dosage form like tablets.
<b>CO 5</b>	My student should be able to describe Drug Stability and its factor, Accelerated stability study and relate them in development of the formulation like tablets, colloidal solutions etc.
<b>CO 6</b>	My student should be able to apply their knowledge of physical and chemical properties of drug molecule in development of the formulation like tablets, colloidal solutions etc.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	1	2	1	2	2	2	2	2	2	3
<b>CO2</b>	3	1	2	1	2	2	2	2	2	2	3
<b>CO3</b>	3	1	2	1	2	2	2	2	2	2	3
<b>CO4</b>	3	1	2	1	2	2	2	2	2	2	3
<b>CO5</b>	3	1	2	1	2	2	2	2	2	2	3
<b>CO6</b>	3	1	2	1	2	2	2	2	2	2	3
								<b>Desired Attainment</b>			2

**Subject: Physical Pharmaceutics II – Practical**

**Subject Code: BP407P**

<b>COURSE OUTCOMES</b>	<b>DESCRIPTION/STATEMENT</b>
<b>CO 1</b>	Students should be able to understand various physio chemical properties of powder, liquids in designing the dosage forms.
<b>CO 2</b>	Students should be able to explain physio chemical properties in the formulation development and evaluation of dosage forms
<b>CO 3</b>	Students should be able to identify and describe various instruments handling techniques .
<b>CO 4</b>	Students should be able to explain principle of chemical kinetics and to use them for stability testing.



*[Signature]*  
Principal  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihir, Buldana.



DBUGVF's

**Rajarshi Shahu College of Pharmacy, Buldana**  
(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	2	1	2	2	2	2	2	2	3
CO2	3	2	2	1	2	2	2	2	2	2	3
CO3	3	2	2	1	2	2	2	2	2	2	3
CO4	3	2	2	1	2	2	2	2	2	2	3
								<b>Desired Attainment</b>			2.09

**Subject: Pharmacology-I Theory**

**Subject Code: BP 404T**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
CO1	To understand the basic concept in pharmacology & pharmacological actions of different categories of drugs
CO2	To learn and acquire the knowledge about mechanism of drug action at receptor /organ system/sub cellular/ macromolecular levels.
CO3	To improve the applicability of the basic pharmacological knowledge in the prevention and treatment of various diseases
CO4	To learn and understand the co-relation of pharmacology with other bio medical sciences

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO 1	3	2	3	3	1	1	1	2	3	2	3
CO 2	3	2	3	2	1	2	1	2	2	2	3
CO 3	2	3	2	1	1	2	2	2	2	1	3
CO 4	3	1	3	3	1	1	2	2	3	3	3
Avg	2.83	2.17	2.33	2.33	1.00	1.50	1.33	1.83	2.33	2.00	3.00
								<b>Desired Average</b>			1.98



  
**Principal**  
**Principal**  
 Rajarshi Shahu College of Pharmacy,  
 Malvihir, Buldana.



DBUGVF's

**Rajarshi Shahu College of Pharmacy, Buldana**  
(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

**Subject: Pharmacology-I Practical**

**Subject Code: BP 408P**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
CO1	To know the knowledge about instruments and animals used in experimental pharmacology
CO2	To explain the knowledge about CPSCEA guidelines for maintenance of laboratory animals
CO3	To perform skills about blood withdrawal , collection , separation of plasma and serum along with anesthesia and euthanasia
CO4	To understand the effect of drugs on animals by simulated experiments

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	1		1		3	3		3	3	3
CO2	3		2	1	1	2	2		2		3
CO3	3	1.5	3		1.5	3	2.5	2.5	2.5		2
CO4	1		3	1.5		3	2		2	2.5	2.5
Avg	2.50	1.00	2.67	1.00	1.00	2.75	2.25	2.00	2.25	2.50	2.50
								Desired Attainment			2.04

**Subject: Pharmacognosy and Phytochemistry -I – Theory**

**Subject: BP405T**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
CO 1	To aware and explain the students about Scope of Pharmacognosy, Classification of Drugs and parameters required to determine the quality control of Drugs
CO 2	To Identify and perform the techniques in the cultivation and production of crude drugs
CO 3	To study and identify the crude drugs, their uses and chemical nature
CO 4	To explain the various the plant tissue culture and its application
CO 5	To explain about the various system of medicines and secondary metabolite
CO 6	To explain and understand about the biological source, chemical nature



**Principal**  
**Principal**  
Rajarshi Shahu College of Pharmacy,  
Malvihiir, Buldana.



DBUGVF's

## Rajarshi Shahu College of Pharmacy, Buldana

(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

and uses of drugs of natural origin containing following drugs											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	1	3	2							
CO2	1	2	2	3							
CO3	1	2	3	2							
CO4	1	2	3	3							
CO5	3	1	2	2							
CO6	2	1	3	3							
										<b>Desired Attainment</b>	2.13

**Subject: Pharmacognosy and Phytochemistry -I - Practical**

**Subject Code: BP409P**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
CO 1	To identify and explain the equipment used in the pharmacognosy laboratory.
CO 2	To perform and understand the morphological and microscopical evaluation of crude drug.
CO 3	To carryout the analysis of the crude drug by chemical test.
CO 4	To identify the purity and quality crude drug by quality control test.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	1	2	1	4							
CO2	2	1	3	1							
CO3	1	1	3	2							
CO4	1	1	3	2							
										<b>Desired Attainment</b>	2



Principal  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihiir, Buldana.



**Semester-V**

**Subject: Medicinal Chemistry-II Theory**

**Subject Code: BP501T**

<b>COURSE OUTCOMES</b>	<b>DESCRIPTION/STATEMENT</b>
<b>CO1</b>	Student shall be able to understand the chemistry of the drug included in syllabus with respect to their pharmacological Action
<b>CO2</b>	Student will Recognized the different classes of drugs included in syllabus based on chemical structure
<b>CO3</b>	Students will able to explain structure activity relationship of different classes of drugs included in syllabus.
<b>CO4</b>	Students will able to Describe the Pathophysiology of different diseases related to Autacoid system, Cancer, Cardiovascular system, Endocrine System, diabetes mellitus Along with pharmacology of Local Anesthesia
<b>CO5</b>	Student will explain the physicochemical properties, Metabolic pathway, Mechanism of action, adverse effect of the drugs included in syllabus
<b>CO6</b>	Student will capable to sketch synthesis reaction of different drugs given in syllabus

	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	<b>PO9</b>	<b>PO10</b>	<b>PO11</b>
<b>CO1</b>	3	1	2	3	1	3	1	1	1	1	3
<b>CO2</b>	3	1	1	1	1	3	2	3	3	1	3
<b>CO3</b>	3	1	1	3	1	1	1	1	1	1	3
<b>CO4</b>	3	1	3	1	1	3	2	3	3	1	3
<b>CO5</b>	3	1	3	1	1	3	1	2	3	1	3
<b>CO6</b>	3	2	3	3	1	3	1	2	3	3	3
<b>Average</b>	3.00	1.17	2.17	2.00	1.00	2.67	1.33	2.00	2.33	1.33	3.00
								<b>Desired Attainment</b>			<b>2.00</b>



  
**Principal**  
**Rajarshi Shahu College of Pharmacy,**  
**Malvihir, Buldana.**



**Subject: Industrial Pharmacy I – Theory**

**Subject Code: BP502T**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
CO1	Students will be able to explain various physicochemical properties of drug and their influence on product
CO2	Students will be able to classify and explain tablet, capsule and liquid dosage form.
CO3	Students will be able to explain formulation, processing and evaluation aspect of parenteral and ophthalmic products.
CO4	Students will be able to describe formulation and preparation of cosmetic products.
CO5	Students will be able to explain aerosol and its examination parameters.
CO6	Students will be able to identify various packaging material with their merits and demerits.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	3	2	3	3	3	3	3	2	3
CO2	2	3	3	3	3	3	3	2	2	1	1
CO3	2	2	3	1	2	3	2	2	1	2	3
CO4	2	2	2	2	2	3	3	3	2	2	1
CO5	1	1	1	1	2	2	2	3	3	3	3
CO6	3	3	3	3	2	2	2	1	1	2	2
								Desired Mapping			2.26



  
**Principal**  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihir, Buldana.





DBUGVF's

## Rajarshi Shahu College of Pharmacy, Buldana

(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

**Subject: Industrial Pharmacy I – Practical**

**Subject Code: BP506T**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
CO1	Students will be able to demonstrate and operate tablet punching machine.
CO2	Students will be able to reproduce the formulation of unit solid dosage form and able to identify their defects.
CO3	Students will be able to reproduce the formulation of cosmetic such as vanishing cream, cold cream and shampoo
CO4	Students will be able to reproduce the formulation of sterile products such as injection and eye drops.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	1	2	2	1	1	2	1	3	1	3
CO2	3	1	2	1	2	2	2	1	2	2	2
CO3	3	2	1	1	2	1	1	1	1	2	3
CO4	3	1	1	1	1	2	1	1	2	1	3
Average	3.0	1.25	1.50	1.25	1.50	1.50	1.50	1.00	2.0	1.50	2.75
								Desired Attainment			1.70



  
Principal  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihir, Buldana.





DBUGVF's

## Rajarshi Shahu College of Pharmacy, Buldana

(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

**Subject: Pharmacology-II Theory**

**Subject Code: BP 503T**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
CO1	Students should be able to explain the role of autocoids, endocrine hormones, steroids and their receptors.
CO2	Students should be able to remember definition & classification of autocoid antagonists, cardiovascular drugs, diuretics, antidiuretics, hormone agonists and antagonists, NSAIDs, antigout drugs, antirheumatic drugs, corticosteroids, androgens, anabolic steroids, oral contraceptives and drugs acting on uterus.
CO3	Students should be able to describe the pharmacological actions of autocoid antagonists, cardiovascular drugs, diuretics, antidiuretics, hormone agonists and antagonists, NSAIDs, antigout drugs, antirheumatic drugs, corticosteroids, androgens, anabolic steroids, oral contraceptives and drugs acting on uterus.
CO4	Students should be able to understand the mechanism of action along with receptors for autocoid antagonists, cardiovascular drugs, diuretics, antidiuretics, hormone agonists and antagonists, NSAIDs, antigout drugs, antirheumatic drugs, corticosteroids, androgens, anabolic steroids, oral contraceptives and drugs acting on uterus.
CO5	Students should be able to describe the uses, adverse effects & dose of autocoid antagonists, cardiovascular drugs, diuretics, antidiuretics, hormone agonists and antagonists, NSAIDs, antigout drugs, antirheumatic drugs, corticosteroids, androgens, anabolic steroids, oral contraceptives and drugs acting on uterus.
CO6	Students should be able to understand principles, applications & types of bioassay and also to remember the bioassay of insulin, oxytocin, vasopressin, ACTH, d- tubocurarine, histamine and 5-HT. The students should be able to discuss the introduction to hemodynamics and electrophysiology of heart, introduction to autocoids and basic concepts in endocrine pharmacology.



  
Principal  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihir, Buldana.



DBUGVF's

## Rajarshi Shahu College of Pharmacy, Buldana

(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO 1	3	2	2	3	1	2		1	2		3
CO 2	3	2	2	2	1	1		1	2		3
CO 3	3	2	3	2	1	1		1	3		3
CO 4	3	3	2	2	1	1		1	1		3
CO 5	3	2	2	2	1	1		1	3		3
CO 6	3	2	2	2	1	1		1	1		3
Avg	3.00	2.17	2.17	2.17	1.00	1.17		1.00	2.00		3.00
								Desired Attainment			1.96

**Subject: Pharmacology-II Practical**

**Subject Code: BP 507P**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
CO1	Students should be able to understand the in-vitro pharmacology, composition, types, role of physiological salt solutions, effect of drugs (adrenaline, acetylcholine, calcium chloride, potassium chloride) on isolated frog heart and blood pressure and heart rate of dog.
CO2	Students should be able to analyze the diuretic activity of furosemide in rats and DRC of Acetylcholine using frog rectus abdominus muscle.
CO3	Students should be able to explain the effect of Physostigmine and Atropine on DRC of Acetylcholine using frog rectus abdominus muscle and rat ileum respectively and bioassay of Histamine using guinea pig ileum by matching method.
CO4	Students should be able to perform the bioassay of Oxytocin using rat uterine horn by interpolation method, bioassay of Serotonin using rat fundus strip by three point bioassay and bioassay of Acetylcholine using rat ileum/colon by four point bioassay.
CO5	Students should be able to determine PA2 value of Prazosin using rat anococcygeus muscle (by Schilds plot method) and PD2value using guinea pig ileum.



Principal  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihir, Buldana.



DBUGVF's

## Rajarshi Shahu College of Pharmacy, Buldana

(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

<b>CO6</b>	Students should be able to describe the effect of spasmogens and spasmolytics (acetylcholine, atropine, physostigmine, propranolol) using rabbit jejunum, anti-inflammatory activity of Indomethacin using carrageenan induced paw-edema model and analgesic activity of Morphine sulphate using central and peripheral methods.
------------	--

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO 1</b>	3	2	3	3	1	1	1	2	3	2	3
<b>CO 2</b>	3	2	3	2	1	2	1	2	2	2	3
<b>CO 3</b>	2	3	2	1	1	2	2	2	2	1	3
<b>CO 4</b>	3	1	3	3	1	1	2	2	3	3	3
<b>CO 5</b>	3	3	2	3	1	2	1	2	2	1	3
<b>CO 6</b>	3	2	1	2	1	1	1	1	2	3	3
<b>Avg</b>	2.83	2.17	2.33	2.33	1.00	1.50	1.33	1.83	2.33	2.00	3.00
								<b>Desired Attainment</b>		<b>2.06</b>	

**Subject Code: Pharmacognosy and Phytochemistry – II– Theory**

**Subject Code: BP504T**

<b>COURSE OUTCOMES</b>	<b>DESCRIPTION/STATEMENT</b>
<b>CO 1</b>	Explain basic metabolic pathways and formation of different secondary metabolites through various pathways included in the syllabus
<b>CO 2</b>	Explain General introduction, composition, chemistry & chemical classes, biosources, therapeutic uses and commercial applications of secondary metabolites included in the syllabus.
<b>CO 3</b>	Explain about General Isolation, Identification and Analysis of Phytoconstituent included in the syllabus.
<b>CO 4</b>	Understand Industrial production, estimation and utilization of the phytoconstituents included in the syllabus
<b>CO 5</b>	Compare and contrast about the traditional as well as modern extraction techniques included in the syllabus.
<b>CO 6</b>	Explain about various separations techniques and spectroscopic included in the syllabus.



*[Signature]*  
Principal  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihiir, Buldana.



DBUGVF's

**Rajarshi Shahu College of Pharmacy, Buldana**  
(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	3	1							
CO2	2	2	3	3	1	1	3	2	1	3	3
CO3	1		2	3							
CO4	3	2	2	1	2	2	3	1	1	3	3
CO5	3	1	3	3	1	3	3	1	3	3	3
CO6	3	2	3	2		1	3		2	3	2
								<b>Desired Attainment</b>			<b>2.19</b>

**Subject :Pharmacognosy and Phytochemistry – I – Practical**

**Subject Code: BP508P**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
CO 1	My student will be able to identify the various crude drug included in the Syllabus
CO 2	My student will be able to perform the isolation of Various phytoconstituents included in the syllabus
CO 3	My student will be able to carryout the isolation volatile oil from crude drug included in the syllabus
CO 4	My student will be able to understand and carryout the separation of Phytoconstituents from mixture by Means of Chromatography

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	1	3	2							
CO2	2	1	2	3							
CO3	2	2	2	3							
CO4	3	1	2	3							
								<b>Desired Attainment</b>			<b>2.19</b>



  
**Principal**  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihir, Buldana.



DBUGVF's

## Rajarshi Shahu College of Pharmacy, Buldana

(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

**Subject: Pharmaceutical Jurisprudence-Theory**

**Subject Code: BP505T**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
CO1	Understanding of the Pharmaceutical legislations and their implications in the development and marketing of pharmaceuticals.
CO2	Students will gain the basic Knowledge and understanding of Various Indian pharmaceutical Acts and Laws
CO3	Knowledge and application of the legislation regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals
CO4	Application of code of ethics during the pharmaceutical practice

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	1		1		3	3		3	3	3
CO2	3		2	1	1	2	2		2		3
CO3	3	1.5	3		1.5	3	2.5	2.5	2.5		2
CO4	1		3	1.5		3	2		2	2.5	2.5
Avg	2.50	1.00	2.67	1.00	1.00	2.75	2.25	2.00	2.25	2.50	2.50
								Desired Attainment			2.04



  
Principal  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihiir, Buldana.



DBUGVF's  
**Rajarshi Shahu College of Pharmacy, Buldana**  
 (Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)


**Semester -VI**

**Subject: Medicinal Chemistry- III Theory**

**Subject Code: BP601T**

<b>COURSE OUTCOMES</b>	<b>DESCRIPTION/STATEMENT</b>										
<b>CO1</b>	My students shall able to Explain Historical Development, Nomenclature and stereochemistry of Antibiotics given in syllabus										
<b>CO2</b>	My students shall able to discuss the classification of antibiotics along with their SAR, mechanism of action, chemical degradation and uses										
<b>CO3</b>	Students shall able to classify the antimalarial drugs given in syllabus and able to recall concept of prodrug, its design and application										
<b>CO4</b>	Students shall able to summarize historical development, nomenclature chemistry, classification and stereochemistry of Anti-infective agents										
<b>CO5</b>	Students shall able to recognize mechanism of action, SAR, uses and synthesis of Anti-infective agents										
<b>CO6</b>	Student shall able to discuss the various approach in drug design and importance of drug design										
	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	<b>PO9</b>	<b>PO10</b>	<b>PO11</b>
<b>CO1</b>	3	2	3	2	3	3	3	3	3	2	3
<b>CO2</b>	2	3	3	3	3	3	3	2	2	1	1
<b>CO3</b>	2	2	3	1	2	3	2	2	1	2	3
<b>CO4</b>	2	2	2	2	2	3	3	3	2	2	1
<b>CO5</b>	1	1	1	1	2	2	2	3	3	3	3
<b>CO6</b>	3	3	3	3	2	2	2	1	1	2	2
								<b>Desired Mapping</b>			<b>2.26</b>



  
**Principal**  
**Principal**  
 Rajarshi Shahu College of Pharmacy,  
 Malvihir, Buldana.



DBUGVF's

**Rajarshi Shahu College of Pharmacy, Buldana**  
(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

**Subject: Medicinal Chemistry- III Practical**

**Subject Code: BP607P**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
<b>CO1</b>	Able to write the chemical synthesis of some drugs
<b>CO2</b>	Describe the structural activity relationship of different class of drug
<b>CO3</b>	Know the identification and characterization of different class of medicinal compounds
<b>CO4</b>	Able to understand the chemistry of drugs with respect to their pharmacological action

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	2	3	2	1	3	3	1	3	2	3
<b>CO2</b>	3	3	3	2	2	2	2	1	3	2	3
<b>CO3</b>	3	2	2	2	2	2	2	1	3	2	3
<b>CO4</b>	2	3	3	2	2	2	2	1	3	2	3
<b>Average</b>	2.75	2.50	2.75	2.00	1.75	2.25	2.25	1.00	3.00	2.00	3.00
								<b>Desired Average</b>		<b>2.30</b>	

**Subject: Pharmacology-III Theory**

**Subject Code: BP 602T**

Course Outcome	Description/Statement
<b>CO1</b>	Students should be able to understand the general principles of chemotherapy, general principles of treatment of poisoning, basic knowledge of acute, subacute and chronic toxicity, genotoxicity, carcinogenicity, teratogenicity and mutagenicity, clinical symptoms and management of barbiturates, morphine, organophosphorus compound and lead, mercury and arsenic poisoning.



  
**Principal**  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihir, Buldana.





DBUGVF's

## Rajarshi Shahu College of Pharmacy, Buldana

(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

<b>CO2</b>	Students should be able to remember the definition & classification of Anti - asthmatic drugs, drugs used in the management of COPD, Expectorants and antitussives, Nasal decongestants, Respiratory stimulants, Antiulcer agents, Drugs for constipation and diarrhoea, Appetite stimulants and suppressants, Digestants and carminatives, Emetics and anti-emetics, Chemoptherapeutic agents, Immunostimulants, Immunosuppressant, Protein drugs, monoclonal antibodies, target drugs to antigen, biosimilars.
<b>CO3</b>	Students should be able to describe the pharmacological actions of Anti - asthmatic drugs, drugs used in the management of COPD, Expectorants and antitussives, Nasal decongestants, Respiratory stimulants, Antiulcer agents, Drugs for constipation and diarrhoea, Appetite stimulants and suppressants, Digestants and carminatives, Emetics and anti-emetics, Chemoptherapeutic agents, Immunostimulants, Immunosuppressant, Protein drugs, monoclonal antibodies, target drugs to antigen, biosimilars.
<b>CO4</b>	Students should be able to explain the mechanism of action & receptors for Anti -asthmatic drugs, drugs used in the management of COPD, Expectorants and antitussives, Nasal decongestants, Respiratory stimulants, Antiulcer agents, Drugs for constipation and diarrhoea, Appetite stimulants and suppressants, Digestants and carminatives, Emetics and anti-emetics, Chemoptherapeutic agents, Immunostimulants, Immunosuppressant, Protein drugs, monoclonal antibodies, target drugs to antigen, biosimilars.
<b>CO5</b>	Students should be able to discuss the uses, adverse effects & dose of Anti - asthmatic drugs, drugs used in the management of COPD, Expectorants and antitussives, Nasal decongestants, Respiratory stimulants, Antiulcer agents, Drugs for constipation and diarrhoea, Appetite stimulants and suppressants, Digestants and carminatives, Emetics and anti-emetics, Chemoptherapeutic agents, Immunostimulants, Immunosuppressant, Protein drugs, monoclonal antibodies, target drugs to antigen, biosimilars.
<b>CO 6</b>	Students should be able to explain Chronopharmacology, definition of rhythm and cycles, biological clock and their significance leading to chronotherapy.



  
**Principal**  
**Rajarshi Shahu College of Pharmacy,**  
**Malvihir, Buldana.**





DBUGVF's

## Rajarshi Shahu College of Pharmacy, Buldana

(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO 1	3	3	3	3	1	1	1	2	2	2	3
CO 2	3	2	2	3	1	1	2	2	2	1	3
CO 3	3	2	2	2	1	1	2	1	3	1	3
CO 4	3	2	2	3	1	1	1	2	2	2	3
CO 5	3	3	1	3	1	1	1	2	2	1	3
CO 6	3	2	2	2	1	1	1	1	2	2	3
Average	3.00	2.33	2.00	2.67	1.00	1.00	1.33	1.67	2.17	1.50	3.00
								Desired Average			1.97

**Subject: Pharmacology-III Practical**

**Subject Code: BP 608P**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
CO1	Students should be able to understand dose calculation in pharmacological experiments, Antiallergic activity by mast cell stabilization assay, Study of anti-ulcer activity of a drug using pylorus ligand (SHAY) rat model and NSAIDS induced ulcer model.
CO2	Students should be able to analyze - Effect of drugs on gastrointestinal motility, Effect of agonist and antagonists on guinea pig ileum, Estimation of serum biochemical parameters by using semi- autoanalyser.
CO3	Students should be able to perform & study - Effect of saline purgative on frog intestine, Insulin hypoglycemic effect in rabbit, Test for pyrogens by rabbit method.
CO4	Students should be able to determine - Acute oral toxicity (LD50) of a drug from a given data and acute skin irritation / corrosion of a test substance.



Principal  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihiir, Buldana.



DBUGVF's

## Rajarshi Shahu College of Pharmacy, Buldana

(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

<b>CO5</b>	Students should be able to describe - Determination of acute eye irritation / corrosion of a test substance and calculation of pharmacokinetic parameters from a given data.
------------	--

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO 1</b>	3	3	3	3	1	2	3	1	2	2	3
<b>CO 2</b>	3	2	2	2	2	3	2	2	3	2	3
<b>CO 3</b>	3	2	2	2	1	3	2	1	3	3	3
<b>CO 4</b>	3	1	2	1	1	2	2	1	2	2	3
<b>CO 5</b>	3	2	3	2	1	2	2	1	2	1	3
<b>Avg</b>	3.00	2.00	2.40	2.00	1.20	2.40	2.20	1.20	2.40	2.00	3.00
								<b>Desired Average</b>		<b>2.16</b>	

**Subject: Herbal Drug Technology Theory**

**Subject Code: BP603T**

<b>COURSE OUTCOMES</b>	<b>DESCRIPTION/STATEMENT</b>
<b>CO 1</b>	Explain about raw material as source of herbal drugs, good agricultural practices of medicinal plants including organic farming, and use of pesticide and insecticide included in the syllabus.
<b>CO 2</b>	Compare and Contrast in Basic principles involved in Ayurveda, Siddha, Unani and Homeopathy system and explain about Preparation and standardization of Ayurvedic formulations viz Aristas and Asawas, Ghutika, Churna, Lehya and Bhasma included in the syllabus.
<b>CO 3</b>	Explain about General aspects, Market, growth, scope and types of products available in the market. Health benefits and role of Nutraceuticals in ailments like Diabetes, CVS diseases, Cancer, Irritable bowel syndrome and various Gastro intestinal diseases included in the syllabus.
<b>CO 4</b>	Classify interaction of drugs and their possible side effects included in the syllabus.
<b>CO 5</b>	Explain about herbal cosmetics and Significance of substances of natural origin as excipients included in the syllabus.



*[Signature]*  
Principal  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihiir, Buldana.



DBUGVF's

## Rajarshi Shahu College of Pharmacy, Buldana

(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

<b>CO 6</b>	Summaries WHO and ICH guidelines for evaluation of herbal drugs and patenting of herbal drugs included in the syllabus.
<b>CO 7</b>	Explain about plant based industries and institutions involved in work on medicinal and aromatic plants in India and their GMP included in the syllabus.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	1	2	1	3	2	1	3	1	3	2
<b>CO2</b>	1	2	3	3		1		3	1	3	1
<b>CO3</b>	1		1		2	1	1	2	1	3	2
<b>CO4</b>	1	2	2	2				1	2	3	2
<b>CO5</b>	1	2	3		1	1	1	2	3	3	1
<b>CO6</b>	1		3	1	3			1	1	3	1
<b>CO7</b>	1	3		1	2	1	1	1	1	3	1
								<b>Desired Attainment</b>			<b>1.76</b>

**Subject: Herbal Drug Technology Practical**

**Subject Code: BP 609P**

<b>COURSE OUTCOMES</b>	<b>DESCRIPTION/STATEMENT</b>
<b>CO 1</b>	Perform Phytochemical screening of crude drugs and to determine Alcohol content in ayurvedic Formulation
<b>CO 2</b>	Perform various Evaluation Parameters of Crude drugs
<b>CO 3</b>	Prepare the various herbal formulation as well as Monograph of crude drugs
<b>CO 4</b>	Perform titrimetric analysis of Crude drugs



Principal  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihiir, Buldana.



DBUGVF's  
**Rajarshi Shahu College of Pharmacy, Buldana**  
 (Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	3	1	1	2	2	1	3	3	3
CO2	3	1	1	1	1	3	2	3	3	2	3
CO3	3	1	2	1	1	2	2	1	3	3	3
CO4	3	1	1	1	1	3	2	2	3	3	3
Average	3	1.25	1.75	1	1	2.50	2	1.75	3	2.75	3
								<b>Desired Attainment</b>			<b>2.09</b>

**Subject: Biopharmaceutics and Pharmacokinetics – Theory**

**Subject Code: BP604T**

<b>COURSE OUTCOMES</b>	<b>DESCRIPTION/STATEMENT</b>
<b>CO1</b>	My students will be able to explain the absorption and distribution process of drug
<b>CO2</b>	My students will be able to explain the process of drug elimination and discuss about bioavailability of drug
<b>CO3</b>	My students will be able to write and explain one compartment models of pharmacokinetic
<b>CO4</b>	My students will be able to write and explain multi compartment models of pharmacokinetic.
<b>CO5</b>	My students will be able to justify the concept of linear and non-linear pharmacokinetic
<b>CO6</b>	My students will be able to define various terms of biopharmaceutics.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	1	3	2	1	1	1	1	3	1	3
CO2	3	2	3	2	1	1	2	1	2	1	2



Principal  
**Principal**  
 Rajarshi Shahu College of Pharmacy,  
 Malvihir, Buldana.



DBUGVF's

## Rajarshi Shahu College of Pharmacy, Buldana

(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

CO3	3	1	1	1	2	1	1	1	1	1	1
CO4	3	1	1	1	1	2	1	2	1	2	3
CO5	3	2	3	2	1	1	2	1	2	1	2
CO6	3	1	3	2	1	1	1	1	3	1	3
Average	3.0	1.25	2.0	1.5	1.25	1.0	1.5	1.0	2.0	1.5	2.20
								Desired Attainment			1.95

**Subject: Pharmaceutical Biotechnology – Theory**

**Subject Code: BP605T**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
CO1	My Student will be able to explain application of biotechnology in pharmaceutical sciences, Application of genetic engineering in medicine, Biosensors, DNA technology.
CO2	My Student will be able to describe about Protein engineering, PCR, Immuno blotting techniques, General method of the preparation of bacterial vaccines and different preparations.
CO3	My Student will be able to summarize Mutation, Genetic organization of Eukaryotes and Prokaryotes and Microbial genetics.
CO4	My Student will be able to memorize & explain about Structure of Immunoglobulins and MHC, Hypersensitivity reactions, Immune stimulation and suppressions, Geneticengineering.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	1		1		3	3		3	3	3
CO2	3		2	1	1	2	2		2		3
CO3	3	1.5	3		1.5	3	2.5	2.5	2.5		2
CO4	1		3	1.5		3	2		2	2.5	2.5
Avg	2.50	1.00	2.67	1.00	1.00	2.75	2.25	2.00	2.25	2.50	2.50
								Desired Attainment			2.04



Principal  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihi, Buldana.



DBUGVF's

## Rajarshi Shahu College of Pharmacy, Buldana

(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

**Subject: Quality Assurance – Theory**

**Subject Code: BP606T**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
<b>CO1</b>	Students should explain the concepts of Quality control, Quality assurance and GMP
<b>CO2</b>	Students should understands , regulatory aspects of pharmaceuticals
<b>CO3</b>	Students should able explain the responsibilities of key personnel in a Pharmaceutical manufacturing unit, and important utilities in pharmaceutical industries
<b>CO4</b>	Students should explain the quality control in pharmaceutical industry and importance of GLP and its scope
<b>CO5</b>	Students should understands importance of documentations in pharmaceutical industry
<b>CO6</b>	Students should understands calibration, qualification , validation, and good warehouse practice

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	3	2		2		3	3	2	2	3
<b>CO2</b>	3			3		3	3			2	3
<b>CO3</b>	3	3	2	2	1	1	1	2		2	3
<b>CO4</b>	3		2	2			1	2		1	3
<b>CO5</b>	3		3	2	2	2	2	2	2	2	2
<b>CO6</b>	3	2	2	2					2		2
								<b>Desired Attainment</b>			<b>2.22</b>



*[Signature]*  
Principal  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihir, Buldana.



DBUGVF's  
**Rajarshi Shahu College of Pharmacy, Buldana**  
(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

**Semester-VII**

**Subject: Instrumental Method of Analysis (Theory)**

**Subject Code: BP701 T**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
CO1	Understands the fundamental concepts of Instrumental techniques interaction of matter with electromagnetic radiations
CO2	Understands the instrumentation of spectroscopic techniques
CO3	Explain applications of spectroscopic techniques in qualitative and quantitative analysis of drugs
CO4	Understands the principle of chromatographic techniques
CO5	Understands the instrumentation of Chromatographic techniques.
CO6	Understands the applications of Chromatographic techniques.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3		3	3		2		2	2		3
CO2	3		2	2							3
CO3	3	2	2	3			2	2	2	2	3
CO4	3		2	2							3
CO5	3		2	2							3
CO6	3	2	2	3			2	2	2	2	3
Average	3.00	2.00	2.17	2.50		2.00	2.00	2.00	2.00	2.00	3.00
								Desired Attainment		2.27	



  
**Principal**  
**Rajarshi Shahu College of Pharmacy,**  
**Malvihir, Buldana.**





DBUGVF's  
**Rajarshi Shahu College of Pharmacy, Buldana**  
 (Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

**Subject: Instrumental Method of Analysis practical**

**Subject Code: BP705 P**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
<b>CO1</b>	Understand the principal and working of UV spectrophotometry
<b>CO2</b>	Understand the principal and working of Calorimetry
<b>CO3</b>	Understand the techniques for flame photometry
<b>CO4</b>	Understand the different techniques for development of chromatography.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3		3	3		2		2	2		3
<b>CO2</b>	3		2	2							3
<b>CO3</b>	3	2	2	3			2	2	2	2	3
<b>CO4</b>	3		2	2							3
<b>Average</b>	3.00	2.00	2.17	2.50		2.00	2.00	2.00	2.00	2.00	3.00
								<b>Desired Attainment</b>		<b>2.15</b>	

**Subject: Industrial Pharmacy II (Theory)**

**Subject Code: BP702 T**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
<b>CO1</b>	Students should be able to know the process of pilot plant and scale up of dosage forms
<b>CO2</b>	Students should be able to understand the process of technology transfer from lab scale to commercial batch
<b>CO3</b>	Students should be able to study different laws and acts that regulate pharmaceutical industry



  
**Principal**  
**Rajarshi Shahu College of Pharmacy,**  
**Malvihiir, Buldana.**





DBUGVF's

## Rajarshi Shahu College of Pharmacy, Buldana

(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

<b>CO4</b>	Students should be able to understand Quality Management System
<b>CO5</b>	Students should be able to aware about concept of QbD

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	3	3	3	1	1	2	3	2	1	3
<b>CO3</b>	3	3	3	3	1	1	2	3	2	1	3
<b>CO2</b>	3	3	3	1	1	1	2	3	3		3
<b>CO4</b>	3	3	3	1	1	1	2	3	3		3
<b>CO5</b>	3	3	3	1	1	1	2	3	2		3
								<b>Final Attainment</b>			<b>2.78</b>

**Subject Code: Pharmacy Practice**

**Subject Code: BP703T**

Course Outcome	Description/Statement
<b>CO1</b>	Students should be able to explain principles of therapeutics, quality improvement, communication, economics, health behavior, social and administrative aspects, health policy.
<b>CO2</b>	Students should be able to perform drug distribution methods in hospital and apply it in the practice of pharmacy.
<b>CO3</b>	Students should be able to apply principles of drug store management and inventory control to medication use.
<b>CO4</b>	Students should be able to monitor drug therapy of patient through medication chart review, obtain medication history interview and counsel the patients, identify drug related problems.
<b>CO5</b>	Students should describe professional ethics by producing safe and appropriate medication use throughout society



  
Principal  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihir, Buldana.



DBUGVF's

## Rajarshi Shahu College of Pharmacy, Buldana

(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	2		1	2	2	3	3	2	3		
CO2	2	2		1		2	2		2		
CO3	1	3	1	3							
CO4	2	2	1			1	1	1	1		
CO5	2					1	3	1	1		
Avg	1.80	2.33	1.00	2.00	2.00	.75	2.25	1.33	1.75		
								Final Attainment			2.18

**Subject: Novel Drug Delivery System – Theory**

**Subject Code: BP 704T**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
CO 1	Students should understand concept of controlled and sustained release drug delivery system and role of various polymers in the design and development of various novel drug delivery systems
CO 2	Students should understand and remember the various processes of microencapsulation and evaluation of the microcapsules
CO 3	Students should understand the concept of mucosal drug delivery system and its design considerations with respect to various theories of muco-adhesion
CO 4	Students should understand the concept of transdermal drug delivery Systems, gastroretentive drug delivery systems, nasopulmonary drug delivery system and its design considerations
CO 5	Students should understand the concept of various targeted drug delivery system and its design considerations
CO 6	Students should understand the concept of ocular drug delivery systems and intrauterine drug delivery systems its design considerations



  
Principal  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihiir, Buldana.



DBUGVF's

## Rajarshi Shahu College of Pharmacy, Buldana

(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	1	2	3	1	1	1	2	1	1	3
CO2	3	1	2	3	1	1	1	2	1	1	3
CO3	3	3	3	3	1	2	1	1	1	1	3
CO4	3	3	3	3	1	1	1	3	1	1	3
CO5	3	3	3	3	1	2	1	1	1	1	3
CO6	3	3	3	3	1	1	1	1	1	1	3
								Desired Attainment			1.91



  
Principal  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihir, Buldana.



**Semester-VIII**

**Subject: Biostatistics and research methodology – Theory**

**Subject Code: BP801T**

COURSE OUTCOMES	DESCRIPTION/STATEMENT
<b>CO 1</b>	Students should understand and learn applications of biostatistics in pharmacy with the help measures of central tendency, measures of dispersion and correlation
<b>CO 2</b>	Students should understand and learn regression analysis, probability, parametric tests and non-parametric tests
<b>CO 3</b>	Students should understand the concept of research methodology and its applications while design of experiments using experimental design techniques. Also understand the significance of plagiarism while drafting the research articles and thesis
<b>CO 4</b>	Students should learn and practices designing the methodology while report writing and presentation of data
<b>CO 5</b>	Students should understand and learn design of experiments using statistical analysis in Excel, SPSS, MINITAB and DOE online software trials
<b>CO 6</b>	Students should understand and the design and analysis of experiments using factorial designs and CCD for optimization of experiments

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	1	2	3	1	1	1	2	1	1	3
<b>CO2</b>	3	1	2	3	1	1	1	2	1	1	3
<b>CO3</b>	3	3	3	3	1	2	1	1	1	1	3
<b>CO4</b>	3	3	3	3	1	1	1	3	1	1	3
<b>CO5</b>	3	3	3	3	1	2	1	1	1	1	3
<b>CO6</b>	3	3	3	3	1	1	1	1	1	1	3
							<b>Desired Attainment</b>				<b>1.91</b>



Principal  
 Principal  
 Rajarshi Shahu College of Pharmacy,  
 Malvihir, Buldana.



DBUGVF's

## Rajarshi Shahu College of Pharmacy, Buldana

(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

**Subject: Social and Preventive Pharmacy**

**Subject Code: BP802T**

Course Outcome	Description/Statement
<b>CO1</b>	Students shall be able to understand the concept of health and disease and thereby understand concept of prevention and control of disease, balanced diet, nutritional deficiencies and malnutrition, impact of urbanization on health and disease.
<b>CO2</b>	Student shall be able to understand the concept of preventive medicine: on various diseases, and concept of addiction -abuse for the drugs or substances.
<b>CO3</b>	Students shall be able to understand the importance of various National health programs on different diseases, its objectives, functioning and outcome.
<b>CO4</b>	Students shall be able to know the significance of various National health intervention programme for mother and child, tobacco control programme, Malaria Prevention Program.
<b>CO5</b>	Students will be able to understand the community health services in rural, urban and school health. Also will know the functions of PHC, and Improvement in rural sanitation.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	1	1	1	1	1	3	2	3	3	2	1
<b>CO2</b>	3	1	1	1	1	3	2	2	3	2	1
<b>CO3</b>	3	1	1	1	1	3	2	2	3	2	1
<b>CO4</b>	3	1	1	1	1	2	3	2	3	2	1
<b>CO5</b>	3	1	1	1	1	3	3	3	3	3	1
<b>AVG</b>	2.60	1.00	1.00	1.00	1.00	2.80	2.40	2.40	3.00	2.20	1.00
							<b>Desired Attainment</b>				<b>1.85</b>



Principal  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihiir, Buldana.



DBUGVF's  
**Rajarshi Shahu College of Pharmacy, Buldana**  
 (Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

**Subject: Pharmaceutical Regulatory Science (Theory)**

**Subject Code: BP804ET**

Course Outcome	Description/Statement
<b>CO1</b>	Students should be able to understand the process of drug discovery and development
<b>CO2</b>	Students should be able to illustrate regulatory approval process
<b>CO3</b>	Students should be able to describe the regulatory authorities and agencies governing the pharmaceuticals
<b>CO4</b>	Students should be able to explain the regulatory approval process and their registration in Indian and international markets
<b>CO5</b>	Students should be able to understand the various aspects of Clinical Trials

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>CO1</b>	3	3	3	2	1	2	3	3	3	1	3
<b>CO2</b>	3	3	3	2	2	2	3	3	3	1	3
<b>CO3</b>	3	3	3	2	2	2	3	3	3	1	3
<b>CO4</b>	3	3	3	3	2	2	3	3	3	1	3
<b>CO5</b>	3	3	3	3	2	2	3	3	3	1	3
								<b>Desired Attainment</b>		<b>2.85</b>	

**Subject: Pharma Marketing Management**

**Subject Code: BP803ET**

Course Outcome	Description/Statement
<b>CO1</b>	Student should, understand of marketing concepts and techniques
<b>CO2</b>	Describe the product specifications
<b>CO3</b>	Know the promotional ideas for marketing
<b>CO4</b>	Understand the different Pharmaceutical marketing channels
<b>CO5</b>	Explain the Emerging concepts in marketing



Principal  
 Principal  
 Rajarshi Shahu College of Pharmacy,  
 Malvihiir, Buldana.



DBUGVF's

## Rajarshi Shahu College of Pharmacy, Buldana

(Approved by AICTE, PCI, New Delhi and affiliated to SantGadge Baba Amravati University, Amravati)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	1	2	1	3	3	1	3	1	3
CO2	3	2	1	1	2	3	3	3	3	1	3
CO3	3	1	1	1	1	3	3	1	3	1	3
CO4	3	2	1	1	1	3	3	1	3	1	3
CO5	3	2	1	1	1	3	3	1	3	1	3
Average	3.0	1.67	1.0	1.17	1.17	3.0	3.0	1.50	3.0	1.17	3
								Desired Attainment			2.06



  
Principal  
Principal  
Rajarshi Shahu College of Pharmacy,  
Malvihir, Buldana.