
	KLE College of Pharmacy, Hubballi (A Constituent Unit of KLE Academy of Higher Education And Research Belagavi- Deemed University)	
		Rev: 1.0 Year: 2021-22
Curriculum Structure with Course Content		

Course Plan

Semester: I	Year: 2021-22
Course Title: Human Anatomy and Physiology- I	Course Code: BP101T
Total Contact Hours: 45	Duration of SEE: 3 Hours
Semester End Examination (SEE) Marks:75	ISA Marks: 25
Lesson Plan Author: Dr. N.M. Jeedi	Checked By: Dr. P.C. Gadad

Course Outcomes (COs):

At the end of the course, the student should be able to:

Code	Course Outcomes (COs)
BP101T.1	Explain the gross morphology, structure and functions of various organs of the human body.
BP101T.2	Describe the various homeostatic mechanisms and their imbalances.
BP101T.3	Identify the various tissues and organs of different systems of human body.
BP101T.4	Understand the anatomy and physiology related to special senses and nervous system.
BP101T.5	Appreciate coordinated working pattern of different organs of each system.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Human Anatomy and Physiology- I	Semester: 1
Course Code: BP101T	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP101T.1	2		1								1
BP101T.2	2		2								1
BP101T.3	2		1								1
BP101T.4	2		1								1
BP101T.5	2		2								1

Degree of Compliance: 1 – Low 2 – Medium 3 - High

Course Plan

Semester: I	Year: 2021-21
Course Title: Pharmaceutical Analysis-I	Course Code: BP102T
Total Contact Hours: 45	Duration of SEE: 3 Hours
Semester End Examination (SEE) Marks:75	ISA Marks: 25
Lesson Plan Author: Dr. A.A. Ankalikar	Checked By: Dr. G.A. Hampannavar

Course Outcomes (COs):

At the end of the course, the student should be able to:

Code	Course Outcomes (COs)
BP102T.1	Describe the fundamentals of analytical chemistry
BP102T.2	Discuss various aspects of statistical analysis
BP102T.3	Explain the principle of acid-base, non-aqueous and precipitation titrations
BP102T.4	Explain the principle of complexometric, gravimetric and redox titrations
BP102T.5	Explain the principles of various electrochemical analysis of drugs

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Pharmaceutical Analysis-I	Semester: 1
Course Code: BP102T	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP102T.1	2	2	2								
BP102T.2	2	2	2								
BP102T.3	3	2	3								
BP102T.4	3	2	3								
BP102T.5	3	2	2								

Degree of compliance 1 Low

2: Medium

3: High

Course Plan

Semester: I	Year: 2021-22
Course Title: Pharmaceutics - I	Course Code: BP 103T
Total Contact Hours: 45	Duration of SEE: 3 Hours
Semester End Examination (SEE) Marks:75	ISA Marks: 25
Lesson Plan Author: Dr.S.P.Hiremath	Checked By: Dr. F.S. Dasankoppa

Course Outcomes (COs):

At the end of the course, the student should be able to:

Code	Course Outcomes (COs)
BP103T.1	Define and express various parts and errors involved in the prescription writing and handling and able to write about historical background, development of pharmacy profession in india.
BP103T.2	Identify different factors affecting dose selection and different methods of dose calculation in children
BP103T.3	Application of different system of weights and measures, different calculation methods in various pharmaceutical preparations. Use of different techniques of solubility enhancement in the formulation of various liquid dosage forms.
BP103T.4	Consider and explain various factors in the preparation of stable monophasic, biphasic and solid dosage form.
BP103T.5	Identify and analyze incompatibilities in pharmaceutical formulations.
BP103T.6	Compile various techniques and evaluation parameters in development of various semi solid dosage form

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Pharmaceutics - I	Semester: 1
Course Code: BP 103T	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
B103T.1	3	-	-	-	-	3	-	-	-	-	2
B103 T.2	2	-	2	-	-	-	-	-	-	-	2
B103 T.3	2	2	3	-	-	-	-	-	-	-	2
B103 T.4	2	3	-	3	-	-	-	-	-	-	3
B103 T.5	2	-	3	-	-	-	-	2	-	-	3
B103 T.6	2	-	2	3	-	-	-	-	-	-	3

Degree of compliance: 1 – Low 2 – Medium 3 – High

Course Plan

Semester: I	Year: 2021-22
Course Title: Pharmaceutical Inorganic Chemistry	Course Code: BP104T
Total Contact Hours: 45	Duration of ESA: 3 Hours
ESA Marks: 75	ISA Marks: 25
Lesson Plan Author: Dr. SS Honnalli	Checked By: Dr. GA Hampanavar

Course Outcomes (COs):

At the end of the course, the student should be able to:

Code	Course Outcomes (COs)
BP104T.1	Discuss the inorganic pharmaceuticals regarding their preparation, analysis and their usage.
BP104T.2	Identify and determine the impurities in inorganic pharmaceutical compounds.
BP104T.3	Describe monograph analysis of inorganic pharmaceutical compounds
BP104T.4	Discuss Radiopharmaceuticals used in diagnosis and therapy.
BP104T.5	Demonstrate the quality and importance of inorganic medicinal compounds.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Pharmaceutical Inorganic Chemistry	Semester: I
Course Code: BP104T	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP104T.1	1	1	2								1
BP104T.2	1	2	2								
BP104T.3	1	2	2								
BP104T.4	2	2	2								
BP104T.5	2	2	2								

Degree of compliance 1 Low

2: Medium

3: High

Course plan

Semester: 1	Year: 2021-21
Course Title: Human Anatomy and Physiology- I	Course Code: BP107P
Total Contact Hours: 60	Duration of SEE: 4 Hours
SEE Marks: 35	CIA Marks:15
Lesson Plan Author: Dr.N.M.Jeedi	Checked By: Dr. P.C.Gadad

Course Outcomes (COs):

At the end of the course, the student should be able to:

Code	Course Outcomes (COs)
BP107P.1	Explain different parts of compound microscope
BP107P.2	Identify different types of tissues using microscope and explain their characteristics
BP107P.3	Identify bones of axial and appendicular skeleton
BP107P.4	Count blood cells and estimate hemoglobin content of blood
BP107P.5	Determine bleeding, clotting time, blood group, blood pressure, heart rate, ESR and pulse rate

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Human Anatomy and Physiology- I practical	Semester: 1
Course Code: BP107P	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP107P.1	2			1							
BP107P.2	2		1	2							
BP107P.3	2		1	2							
BP107P.4	2	2	2								
BP107P.5	2	2	2	1							

Degree of compliance: 1 – Low 2 – Medium 3 - High

Course Plan

Semester: I	Year: 2021-21
Course Title: Pharmaceutical Analysis-I	Course Code: BP 108 P
Total Contact Hours: 60	Duration of ESA: 4 Hours
ESA Marks:35	IA Marks:15
Lesson Plan Author: Dr. A.A. Ankalikar	Checked By: Dr. S.S. Honnali

Course Outcomes (COs):

At the end of the course, the student should be able to:

Code	Course Outcomes (COs)
BP108P.1	Understand the principles involved various limit test
BP108P.2	Prepare and standardize various inorganic compounds
BP108P.3	Demonstrate assay of various inorganic compounds along with their standardization techniques analytical study of given compounds.
BP108P.4	Demonstrate electrochemical methods.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Pharmaceutical Analysis-I practical	Semester:I
Course Code: BP 108 P	Year: 2021-22

MAPPING OF CO –ATRICES Subject: Pharmaceutical Analysis 1

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP108P.1	1	1	2								
BP108P.2	1	2	2								
BP108P.3	1	2	2								
BP108P.4	1	2	2								

Note: Correlation levels 1, 2 or 3 as defined below:

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)

It there is no correlation, put '-'

Course Plan

Course Title: Pharmaceutics -I	Course Code: BP109P
Total Contact Credits: 30	Duration of SEE: 4 Hours
SEE Marks:35	CIA Marks:15
Lesson Plan Author: Dr.S.P.Hiremath	Date:
Checked By: Dr. F.S.Dasankoppa	Date:

Course Outcomes (COs):

At the end of the course, the student should be able to:

Code	
BP109P.1	Understand the basics of different dosage forms, pharmaceutical calculations and prepare various conventional dosage forms and submit.
BP109P.2	Understand and able to do various pharmaceutical calculations.
BP109P.3	Prepare various conventional dosage forms and submit with a neat label.

Course Articulation Matrix: Mapping of Course Outcomes (CO) with Program Outcomes (PO)

Course Title: Pharmaceutics- I	Semester: 1
Course Code: BP109P	Year: 2021-2022

	Course Outcomes (COs) / Program Outcomes (POs)	1	2	3	4	5	6	7	8	9	10	11
BP109P.1	Understand the basics and theory involved in the preparation of different dosage forms.	3	2	1								2
BP109P.2	Understand and able to do various pharmaceutical calculations	2	2	3								2
BP109 P.3	Able to prepare various conventional dosage forms and submit with a neat label.	3	2		3							2

Degree of compliance: 1 – Low 2 – Medium 3 – High

Course Plan

Semester: I	Year: 2021-22
Course Title: Pharmaceutical Inorganic Chemistry	Course Code: BP110P
Total Contact Hours: 60	Duration of ESA: 4 Hours
ESA Marks: 35	ISA Marks: 15
Lesson Plan Author: Dr S.S. Honnalli	Checked By Dr G.A. Hamppanavar

Course Outcomes (COs):

At the end of the course, the student should be able to:

Code	Course Outcomes (COs)
BP110P.1	Identify and determine the impurities in inorganic pharmaceutical compounds.
BP110P.2	Illustrate identification tests for inorganic pharmaceutical compounds
BP110P.3	Demonstrate the preparation of inorganic medicinal compounds
BP110P.4	Exhibit the skill of Test for purity and assay of inorganic pharmaceutical compounds

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Pharmaceutical Inorganic Chemistry	Semester: I
Course Code: BP110P	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP110P.1	2	1									1
BP110P.2	1	2									
BP110P.3	1	1	2								
BP110P.4	1	1	2								

Degree of compliance 1 Low

2: Medium

3: High

COURSE PLAN

Semester:1

Year: 2021-22

Course title: Communication Skills and Spoken English	Course code: BP111P
Total Contact Credits: 30	Duration of ESA: 1.5 Hours
ESA Marks: 15	ISA Marks: 10
Lesson Plan Author: Mrs. A.A. Ankalikar	Checked By: Dr. P.M. Ronad

Course Outcomes (COs):

At the end of the course, the student should be able to:

COURSE OUTCOMES (COs)	
Code	
BP111P.1	Effective verbal and nonverbal communication
BP111P.2	Effectively manage the team and be an effective team player
BP111P.3	Develop interview skills
BP111P.4	Develop leadership qualities and mannerism
BP111P.5	Enumerate the behavioral needs for a Pharmacist to function effectively in the areas of pharmaceutical operation

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP111P.1					2		1	2			1
BP111P.2					2		1	2			1
BP111P.3					2		1	2			1
BP111P.4					2		1	2			1
BP111P.5					2		1	2			1

Degree of compliance 1 Low ,2: Medium, 3: High

COURSE PLAN

Name of the Course: Remedial Biology (Practical)	
Course code: BP112RBP	
Teaching hours: Practical 30Hrs.	Maximum Marks: 25
Lesson Plan Author: Dr. K.S. Akki	Date: 02-07-2021
Checked By: Dr. P.M. Ronad	Date: 05-07-2021

COURSE OUTCOMES (COs)	
BP112RBP.01	Demonstrate section-cutting techniques, mounting, staining and permanent slide preparation.
BP112RBP.02	Elucidate the structure and functions of living organism.
BP112RBP.03	Demonstrate the microscopic study and identification of tissues pertinent to stem, root, leaf, seed, fruits and flowers.
BP112RBP.04	Determination and identification of bones, blood group, blood pressure and tidal volume.

Course Articulation Matrix: Mapping of Course Outcomes (CO) with Program Outcomes (PO)

Code	Program Outcomes (PO's)										
	1	2	3	4	5	6	7	8	9	10	11
BP112RBP.01	1										
BP112RBP.02	1										
BP112RBP.03	1										
BP112RBP.04	1										

Degree of compliance **1** Low

2: Medium

3: High

Course Plan

Semester: II

Year: 2021-22

Course Title: Human Anatomy and Physiology- II	Course Code: BP201T
Total Contact Credits: 45	Duration of ESA: 3 Hours
ESA Marks: 75	ISA Marks: 25
Lesson Plan Author: Mr.N.M.Jeedi	Checked By: Dr.P.C.Gadad

Course Outcomes (COs):

At the end of the course, the student should be able to:

COURSE OUTCOMES (COs)	
BP201T.1	Explain the gross morphology, structure and functions of various organs of the human body.
BP201T.2	Describe the various homeostatic mechanism and their imbalances.
BP201T.3	Describe the various tissues and organs of different systems of human body.
BP201T.4	Appreciate coordinated working pattern of different organs of each system.
BP201T.5	Appreciate the interlinked mechanisms in the maintenance of normal functioning (homeostasis) of human body.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Human Anatomy and Physiology- II	Semester: II
Course Code: BP 201T	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP 201T.1	2		1								
BP 201T.2	2	1	1	2							
BP 201T.3	2		1	1							
BP 201T.4	1	1	2	2							1
BP 201T.5	2		1								

Degree of compliance **1** Low **2:** Medium **3:** High

Course Plan

Semester: 2

Year: 2021-22

Course Title: Pharmaceutical Organic Chemistry-I	Course Code: BP202T
Total Contact Credits: 45	Duration of ESA: 3 Hours
ESA Marks: 75	ISA Marks: 25
Lesson Plan Author: Dr. P.M. Ronad	Checked By: Dr. SS Honnalli

At the end of the course, the student should be able to:

COURSE OUTCOMES (COs)	
BP202T.1	Write the structure and scientific nomenclature of organic compounds
BP202T.2	Write the reaction, mechanism and orientation of reactions
BP202T.3	Describe the reactivity/stability of compounds
BP202T.4	Explain the functional groups through qualitative tests.
BP202T.5	Elucidate the synthesis of organic compounds.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Pharmaceutical Organic Chemistry-I	Semester: 2
Course Code: BP202T	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP202T.1	1	1	2								1
BP202T.2	1	2	2								
BP202T.3	1	2	2								
BP202T.4	2	2	2								
BP202T.5	2	2	2								

Degree of compliance 1 Low 2: Medium 3: High

Course Plan

Semester: II

Year: 2021-22

Course Title: Biochemistry	Course Code: BP203T
Total Contact Credits: 45	Duration of ESA: 3 Hours
ESA Marks: 75	ISA Marks: 25
Lesson Plan Author: Dr. A A Ankalikar	Dr. P M Ronad

Course Outcomes (COs):

At the end of the course, the student should be able to:

COURSE OUTCOMES (COs)

BP203T.1	Understand chemical nature and biological functions of various biomolecules
BP203T.2	Define the importance of enzymes, enzyme inhibitors, therapeutic and diagnostic applications of enzymes.
BP203T.3	Describe the metabolism of various biomolecules and analyze the associated disorders in their metabolic pathways.
BP203T.4	Explain and integrate the concept of bioenergetics, biological oxidation
BP203T.5	Describe genetic organization of mammalian genome and functions of DNA in the synthesis of RNAs and proteins

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP203T.1	2	2	3	--	--	--	--	--	--	--	2
BP203T.2	2	2	3	--	--	--	--	--	--	--	1
BP203T.3	2	2	2	--	--	--	--	--	--	--	1
BP203T.4	2	3	2	--	--	--	--	--	--	--	1
BP203T.5	2	2	2	2	--	--	--	--	--	--	1

Degree of compliance 1 Low

2: Medium

3:

Hig

Course Plan

Semester: II

Year: 2021-22

Course Title: Pathophysiology	Course Code: BP204T
Total Contact Credits: 45	Duration of ESA: 3 Hours
ESA marks:75	ISA Marks: 25
Lesson Plan Author: Dr. S.K. Nimbale	Checked By: Dr. P.C. Gadad

Course Outcomes (COs):

At the end of the course, the student should be able to:

Course	Course Outcomes
204T.1	Explain cell injury, cellular adaptations and inflammation
204T.2	Describe the etiology and pathogenesis various diseases
204T.3	Explain the signs and symptoms of the various diseases
204T.4	Describe the complications of the diseases

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Pathophysiology	Semester: II
Course Code: BP 204 T	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
204 T.1	2	-	-	-	-	1	-	-	-	-	1
204 T.2	1	-	2	-	-	1	-	-	-	-	-
204 T.3	1	-	2	-	1	-	-	-	-	-	-
204 T.4	1	-	-	-	-	-	-	-	2	-	1

Degree of compliance: 1 – Low

2 – Medium

3 – High

Course Plan

Semester: 2

Year: 2021-22

Course Title: COMPUTER APPLICATIONS IN PHARMACY	Course Code: BP205T
Total Contact Credits: 45	Duration of ESA: 3 Hours
ESA Marks: 50	ISA Marks: 25
Lesson Plan Author: Dr. Karibasappa KG	Checked By: Dr. P.M. Ronad

Course Outcomes (COs):

BP205T.1	Explain the connections between binary numbers and computers.
BP205T.2	Describe the use of a website with appropriate documentation.
BP205T.3	Explain tools and methods to Application of computers in Pharmacy.
BP205T.4	Explain the implications for communication of Bioinformatics as data exchange.
BP205T.5	Elucidate tools and methods data analysis in Preclinical development.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: COMPUTER APPLICATIONS IN PHARMACY	Semester: II
Course Code: BP205T	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP205T.1	1	1	1	2	1	--	1	1	1	--	1
BP205T.2	1	1	1	2	1	--	1	1	1	--	1
BP205T.3	1	1	1	2	1	--	1	1	1	--	1
BP205T.4	1	1	1	2	1	--	1	1	1	--	1
BP205T.5	1	1	1	2	1	--	1	1	1	--	1

Degree of compliance 1 Low

2: Medium

3: High

COURSE PLAN

Semester: II

Year: 2021-22

Course Title: Environmental studies *	Course Code: BP206T
Total Contact Credits: 45	Duration of ESA: 3 Hours
ESA Marks: 50	ISA Marks: 30
Lesson Plan Author: Ms Pratiksha Akki	Checked By: Dr. P.M.Ronad

Course Outcomes (COs):

At the end of the course, the student should be able to:

COURSE OUTCOMES (COs)	
BP206T.1	Explain the importance of environmental science, ecosystem and resources.
BP206T.2	Describe the impact of global warming, depletion of ozone layer and loss of biodiversity on environment
BP206T.3	Outline the economic productivity and national security
BP206T.4	Describe the laws related to environmental protection

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Environmental studies *	Semester: II
Course Code: BP206T	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP206T.1										1	
BP206T.2		1	1							1	
BP206T.3										1	
BP206T.4										1	1

Degree of compliance 1 Low

2: Medium

3: High

COURSE PLAN

Semester: II

Year: 2021-22

Course Title: Human Anatomy and Physiology- II	Course Code: BP207P
Total Contact Credits: 60	Duration of ESA: 4 Hours
ESA Marks: 35	ISA Marks: 15
Lesson Plan Author: Mr. N.M.Jeedi	Checked By: Dr. P.C.Gadad

Course Outcomes (COs):

At the end of the course, the student should be able to:

COURSE OUTCOMES (COs)	
BP207P.1	Explain the gross structure and functions of special sense organs, integumentary, nervous, endocrine, digestive, respiratory, cardio vascular, urinary and reproductive systems.
BP207P.2	Explain the microscopic structure and functions of tissue slides of vital organs and gonads. Family planning devices and pregnancy test
BP207P.3	Demonstrate general neurological examination, olfactory, taste, visual acuity, reflex activity, positive and negative feedback mechanism and total blood count.
BP207P.4	Record body temperature, respiratory volumes and BMI.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Human Anatomy and Physiology- II	Semester: II
Course Code: BP207P	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP207P.1	2	1	2	-	-	-	-	-	-	-	1
BP207P.2	2	1		2	-	-	-	-	-	-	1
BP207P.3	2	1	1	2	-	-	-	-	-	-	1
BP207P.4	2	1	1	2	-	-	-	-	-	-	-

Degree of compliance **1** Low **2:** Medium **3:** High

COURSE PLAN

Semester: 2

Year: 2021-22

Course Title: Pharmaceutical Organic Chemistry-I	Course Code: BP208P
Total Contact Credits: 60	Duration of ESA: 04 Hours
ESA Marks: 35	ISA Marks: 15
Lesson Plan Author: Dr. P.M. Ronad	Checked By: Dr. S.S. Honnalli

Course Outcomes (COs):

At the end of the course, the student should be able to:

COURSE OUTCOMES (COs)

BP208P.1	Write the structure and scientific nomenclature of organic compounds
BP208P.2	Write the reaction, mechanism of elemental analysis.
BP208P.3	Demonstrate and confirm the functional groups through qualitative tests.
BP208P.4	Execute the synthesis of organic compounds.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Pharmaceutical Organic Chemistry-I	Semester: 2
Course Code: BP208P	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP208P.1	1	1	2								1
BP208P.2	1	2	2								
BP208P.3	1	2	2								
BP208P.4	2	2	2								

Degree of compliance 1 Low 2: Medium 3: High

COURSE PLAN

Semester: II

Year: 2021-22

Course Title: Biochemistry (Practical)	Course Code: BP209P
Total Contact Credits: 60	Duration of ESA: 4 Hours
ESA Marks: 35	ISA Marks: 15
Lesson Plan Author: Dr. AA Ankalikar	Checked By: Dr. P.M. Ronad

Course Outcomes (COs):

At the end of the course, the student should be able to:

COURSE OUTCOMES (COs)	
BP209P.1	Perform qualitative analysis of carbohydrates and proteins
BP209P.2	Perform qualitative analysis of urine for normal and abnormal constituents
BP209P.3	Demonstrate the quantitative analysis of various biomolecules
BP209P.4	Determine the factors affecting enzyme activity

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Biochemistry (Practical)	Semester: II
Course Code: BP209P	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP209P.1	1	2	2	--	--	--	--	--	--	--	1
BP209P.2	1	2	2	--	--	--	--	--	--	--	--
BP209P.3	1	2	2	--	--	--	--	--	--	--	--
BP209P.4	1	2	2	--	--	--	--	--	--	--	--

Degree of compliance: **1: Low** **2: Medium** **3: High**

COURSE PLAN

Semester: 2

Year: 2021-22

Course Title: Computer Applications in Pharmacy	Course Code: BP210P
Total Contact Credits: 30	Duration of ESA: 3 Hours
ESA Marks: 15	ISA Marks: 5+5
Lesson Plan Author: Dr. Karibasappa KG	Checked By: Dr. P.M. Ronad

Course Outcomes (COs): At the end of the course, the student should be able to:

BP210P1	Explain the concepts of computers for a given bioinformatics / pharmaceutical problem.
BP210P2	Constructing mailing labels Using Label Wizard , generating label in MS WORD
BP210P3	Generating and working with queries in MS Access
BP210P4	Exporting Tables, Queries, Forms and Reports to web pages

CO-PO matrix for the course

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP210P1	1	1	1	2	--	--	1	--	1	--	1
BP210P2	1	1	1	2	--	--		1	--	--	1
BP210P3	1	1	1	2	1	--	--	1	--	--	1
BP210P4	1	1	1	2	1	--	1	2	1	--	1

Degree of compliance: **1: Low 2: Medium 3:Hig**

Course Plan

Semester: III	Year: 2021-22
Course Title: Pharmaceutical Organic Chemistry-II	Course Code: BP301T
Total Contact Hours: 45	Duration of ESA: 3 Hours
ESA Marks: 75	ISA Marks: 25
Lesson Plan Author: Dr. P.M. Ronad	Checked By: Dr. GA Hamppannavar

Course Outcomes (COs):

At the end of the course, the student should be able to:

Code	Course Outcomes (COs)
BP301T.1	Write the structure, name and type of the organic compound
BP301T.2	Write the reaction, name the reaction and orientation of reactions
BP301T.3	Describe the reactivity/stability of compounds
BP301T.4	Describe the chemistry of Oils, fats and Polynuclear hydrocarbon
BP301T.5	Explain synthesis of organic compounds/drugs.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Pharmaceutical Organic Chemistry-II	Semester: III
Course Code: BP 301T	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP301T.1	2	1	2								1
BP301T.2	1	2	2								
BP301T.3	1	2	1								
BP301T.4	2	2	1								
BP301T.5	2	2	2								

Degree of compliance 1 Low

2: Medium

3: High

Course Plan

Course Title: Physical Pharmaceutics-I	Semester: 3
Course Code: BP 302 T	Year: 2021-22

	Course Outcomes (COs) / Program Outcomes (POs)
302 T.1	Define and explain physical & chemical properties of the drug molecules, in designing stable and effective dosage form.
302 T.2	Define and classify types of solubility, solubilization phenomenon and factors influencing them
302 T.3	Explain, derive and apply buffer equation in development of stable dosage forms.
302 T.4	Explain concept & laws involved in the states of matter.
302 T.5	Define Classify complexes & explain method of analysis, protein binding of drugs.
302 T.6	Express & apply various law in development of experimental method for calculation of partition coefficient, surface & interfacial tension, adsorption, diffusion.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Physical Pharmaceutics-I	Semester: III
Course Code: BP 302 T	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
302 T.1	2	1	2								1
302 T.2	1	2	2								
302 T.3	1	2	1								
302 T.4	2	2	1								
302 T.5	2	2	2								
302 T.6											

Degree of compliance 1 Low

2: Medium

3: High

Course Plan

Semester: III	Year: 2021-22
Course Title: Pharmaceutical Microbiology	Course Code: BP303T
Total Contact Horus: 45	Duration of ESA: 3 Hours
Semester End Examination (SEE) Marks:75	Continuous IA Marks: 25
Lesson Plan Author: Dr. S.K. Nimbal	Checked By: Dr. S P Hiremath

Course Outcomes (COs):

At the end of the course, the student should be able to:

Code	Course Outcomes(COs)
BP303T.1	Describe history, classification, Identification, culture media, cultivation and preservation of various microorganisms.
BP303T.2	Explain importance of sterilization in microbiology and pharmaceutical industry
BP303T.3	Define and develop different methods of Disinfection
BP303T.4	Discuss the microbial standardization of Pharmaceuticals.
BP303T.5	Explain the cell-culture technology and its applications

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Pharmaceutical Microbiology	Semester: III
Course Code: BP 303 T	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP303T.1	3	-	-	-	-	2	-	-	2	-	-
BP303T.2	3	-	-	-	2	-	-	-	2	-	2
BP303T.3	3	-	-	-	-	-	-	-	-	-	2
BP303T.4	-	2	2	-	-	-	-	-	-	-	2
BP303T.5	-	-	-	2	2	-	-	-	-	2	-

Degree of compliance: 1 – Low 2 – Medium 3 – High

Course Plan

Semester: III	Year: 2021-22
Course Title: Pharmaceutical Engineering	Course Code: BP304 T
Total Contact Hours: 45	Duration of ESA: 3 Hours
ESA Marks:75	ISA Marks: 25
Lesson Plan Author: Dr. F.S. Dasankoppa	Checked By: Dr. S.P. Hiremath

Course Outcomes (CO):

At the end of the course, the student should be able to:

Code	Course Outcomes(COs)
304 T.1	Define and explain different unit operations involved in pharmaceutical industry
304 T.2	Identify various pharmaceutical machinery with their construction and working
304 T.3	Apply various laws in problem solving of pharmaceutical material handling and processing.
304 T.4	Comprehend significance of plant lay out design for optimum use of resources
304 T.5	Apply various preventive methods used for environmental pollution and corrosion control in Pharmaceutical industries

Course Articulation Matrix: Mapping of Course Outcomes (CO) with Program Outcomes (PO)

Course Title: Pharmaceutical Engineering	Semester: III
Course Code: BP304 T	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP304 T.1	3	-	3	-	3	-	2	-	-	-	3
BP304 T.2	-	2	2	-	-	2	-	-	2	2	-
BP304 T.3	2	-	2	3	-	-	3	2	-	-	-
BP304 T.4	-	-	-	-	2	-	-	-	-	-	2
BP304 T.5	3	-	2	-	-	2	2	-	2	2	1

Degree of compliance: 1 – Low 2 – Medium 3 – High

Course Plan

Semester: III	Year: 2021-22
Course Title: Pharmaceutical Organic Chemistry-II	Course Code: BP305P
Total Contact Hours: 60	Duration of ESA: 4 Hours
ESA Marks: 35	ISA Marks: 15
Lesson Plan Author: Dr. P.M. Ronad	Checked By: Dr. GA Hampannavaur

Course Outcomes (COs):

At the end of the course, the student should be able to:

Code	Course Outcomes (COs)
BP305P.1	Write the structure, name and type of the organic compound
BP305P.2	Carryout the analytical value of oils.
BP305P.3	Demonstrate synthesis of organic compounds/drugs.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Pharmaceutical Organic Chemistry-II	Semester: III
Course Code: BP 305P	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP305P.1	1	2	2								1
BP305P.2	1	2	2								
BP305P.3	1	2	2								

Degree of compliance 1: Low

2: Medium

3: High

Course plan

Semester: III	Year: 2021-22
Course Title: Physical Pharmaceutics-I	Course Code: BP306 P
Total Contact Hours: 60	Duration of SEE: 4 Hours
SEE Marks:35	CIA Marks:15
Lesson Plan Author: V.V. Nagathan	Checked By: Dr. F.S.Dasankoppa

Course Outcomes (CO):

At the end of the course, the student should be able to

Code	Course Outcomes (CO)
BP306 P.1	Determine the physicochemical properties of drug molecules.
BP306 P.2	Express & apply various law in development of experimental methods for calculation of partition coefficient, adsorption.
BP306 P.3	Analysis of complexation
BP306 P.4	Analysis of surfactant.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Physical Pharmaceutics-I (Practical)	Semester: III
Course Code: BP306 P	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP 306 P.1	3	2	-	2	-	-	-	-	-	-	2
BP 306 P.2	3	2	1	1	-	-	-	-	-	-	2
BP 306 P.3	3	2	2	1	-	-	-	-	-	-	
BP 306 P.4	3	2	1	1	-	-	-	-	-	-	

Degree of compliance: 1 – Low 2 – Medium 3 - High

Course Plan

Semester: III	Year: 2021-22
Course Title: Pharmaceutical Microbiology	Course Code: BP307P
Total Contact Hours: 60	Duration of SEE: 4 Hours
SEE Marks:35	CIA Marks:15
Lesson Plan Author: Dr. S.K. Nimbal	Checked By: Dr. S P Hiremath

Course Outcomes (COs):

At the end of the course, the student should be able to:

Code	Course Outcomes (COs)
BP307P.1	Study of different equipment including demonstration of sterilization
BP307P.2	Identification of microbes including biochemical tests and isolation of microbes
BP307P.3	Demonstrate the microbial assay of antibiotics
BP307P.4	Motility determination and sterility testing of pharmaceuticals

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Pharmaceutical Microbiology practical	Semester: III
Course Code: BP 307 P	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP 307 P.1	1	-	-	2	-	2	-	-	-	-	-
BP 307 P.2	1	-	2	-	-	-	-	-	2	-	-
BP 307 P.3	-	-	-	1	-	2	-	-	-	-	3
BP 307 P.4	-	-	2	-	-	2	-	-	-	-	3

Degree of compliance: 1 – Low 2 – Medium 3 – High

Course Plan

Semester: III	Year: 2021-22
Course Title: Pharmaceutical Engineering	Course Code: BP308 P
Total Contact Hours: 60	Duration of ESA: 4 Hours
ESA Marks:35	IA Marks:15
Lesson Plan Author: Dr. F.S. Dasankoppa	Checked By: Dr. S.P. Hiremath

Course Outcomes (COs):

At the end of the course, the student should be able to:

Code	Course Outcomes (COs)
BP 308 P.1	Identify various pharmaceutical machinery with their construction and working for pharmaceutical material handling and processing.
BP 308 P.2	Reason critically, analyze, evaluate and report experimental data by application of various laws/ concept. Explain methodologies for problem solving during handling and processing.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Pharmaceutical Engineering practical	Semester: III
Course Code: BP 308 P	Year: 2021-22

Mapping of Co – Po Matrices

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP 304 P.1	3	1	1	-	-	-	-	-	-	-	-
BP 304 P.2	-	2	2	3	-	-	-	-	-	-	-

Note: Correlation levels 1, 2 or 3 as defined below:

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)

It there is no correlation, put ‘-’

Department of Pharmaceutical Chemistry

Semester: IV

Course Plan

Year: 2021-22

Course Title: Pharmaceutical Organic Chemistry-III	Course Code: BP401T
Total Contact Credits: 45	Duration of ESA: 3 Hours
ESA Marks: 75	ISA Marks: 25
Lesson Plan Author: Mrs. Akshata. S. M	Checked By: Dr. PM Ronad

Course Outcomes (COs):

At the end of the course, the student should be able to:

COURSE OUTCOMES (COs)

BP401T.1	Explain the stereo chemical aspects of organic compounds and stereo chemical reactions
BP401T.2	Identify, classify the heterocyclic compounds
BP401T.3	Understand the methods of preparation and properties of organic compounds
BP401T.4	Know the medicinal uses and other applications of organic compounds
BP401T.5	Explain the named reactions and mechanism

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Pharmaceutical Organic Chemistry-III	Semester: IV
Course Code: BP 401T	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP401T.1	1	2	2	-	-	-	-	-	-	-	-
BP401T.2	1	2	1	-	-	-	-	-	-	-	-
BP401T.3	1	1	2	-	-	-	-	-	-	-	-
BP401T.4	1	2	2	-	-	-	-	-	-	-	-
BP401T.5	1	1	2	-	-	-	-	-	-	-	-

Degree of compliance

1 Low

2: Medium

3: High

**Department of Pharmaceutical Chemistry
Course Plan**

Semester: IV

Year: 2021-22

Course Title: Medicinal Chemistry-I	Course Code: BP402T
Total Contact Credits: 45	Duration of ESA: 3 Hours
ESA Marks: 75	ISA Marks: 25
Lesson Plan Author: Dr. Pradeep Kumar M.R.	Checked By: Dr. PM Ronad

COURSE OUTCOMES (COs)	
BP402T.1	Explain the basic principles of drug action and drug metabolism principles.
BP402T.2	Write the structure, SAR, MOA and therapeutic uses of drugs acting on adrenergic nervous system.
BP402T.3	Write the structure, SAR, MOA and therapeutic uses of drugs acting on cholinergic nervous system.
BP402T.4	Explain the structure, SAR, MOA and medicinal uses of Anti-psychotics, anticonvulsants, hypnotics and sedatives.
BP402T.5	Explain the structure, SAR, MOA and medicinal uses of anti-inflammatory agents, general anaesthetics, narcotic and non-narcotic agents.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Medicinal Chemistry-I	Semester: IV
Course Code: BP402T	Year: 2021-22

Code	Program Outcomes PO's										
	1	2	3	4	5	6	7	8	9	10	11
BP402T.1	2	1	2	--	--	--	--	--	--	--	1
BP402T.2	2	2	2	--	--	--	--	--	--	--	--
BP402T.3	1	2	1	--	--	--	--	--	--	--	--
BP402T.4	2	2	1	--	--	--	--	--	--	--	--
BP402T.5	1	2	2	--	--	--	--	--	--	--	--

Degree of compliance 1 Low

2: Medium

3: High

Course Plan

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Physical Pharmaceutics-II	Semester: IV
Course Code: BP403 T.	Year:

	Course Outcomes (COs) / Program Outcomes (POs)
BP403T.1	Define and express various basic physical principles of micromeritics, rheology, coarse dispersions, colloids.
B P403T.2	To identify application of basic principles in development of solid, liquid & semisolid dosage forms.
BP403T.3	Explain , derive rate constants & assessment of stability of drug
BP403T.4	Derive & apply various laws describing micromeritics, rheology, coarse dispersions, colloids,
BP403T.5	Evaluate physical & chemical properties of the drug substances & dosage forms.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Physical Pharmaceutics-II	Semester: IV
Course Code: BP403 T.	Year:

Code	Program Outcomes PO's										
	1	2	3	4	5	6	7	8	9	10	11
BP403T.1	3	1	-	--	--	--	--	--	--	--	-2
B P403T.2	3	2	2	-	--	--	--	--	--	--	2
BP403T.3	3	2	2	--	--	--	--	--	--	--	2
BP403T.4	3	2	2	--	--	--	--	--	--	--	2
BP403T.5	3	-	3	2	--	--	--	--	--	--	2

Course Plan

Semester: IV

Year: 2021-22

Course Title: Pharmacology-I	Course Code: BP 404 T
Total Contact Credits: 45	Duration of ESA: 3 Hours
ESA Marks: 75	ISA Marks: 25
Lesson Plan Author: Mr. Santosh B. Patil	Checked By: Dr. P.C.Gadad

Course Outcomes (COs):

At the end of the course, the student should be able to:

COURSE OUTCOMES (COs)	
BP 404 T.1	Assimilate the scope of pharmacology, source and discovery of drugs, routes of drug administration and pharmacological actions of different categories of drugs
BP 404 T.2	Comprehend the mechanism of pharmacokinetics and pharmacodynamics action at organ system/sub cellular/ macromolecular levels.
BP 404 T.3	To understand the therapeutic uses and adverse effects of the drugs
BP 404 T.4	Apply the basic pharmacological knowledge in the treatment of various diseases related to autonomic nervous system.
BP 404 T.5	Understand the prevention and treatment of various diseases related to central nervous system.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Pharmacology-I	Semester: IV
Course Code: BP 404 T	Year: 2021-22

Code	Program Outcomes PO's										
	1	2	3	4	5	6	7	8	9	10	11
BP 404T.1	3					2			2		
BP 404T.2	3					2			2		
BP 404T.3	3					2			2		
BP 404T.4	3					2			2		
BP 404T.5	3					2			2		

Degree of compliance **1** Low

2: Medium

3: High

Department of Pharmacognosy

Semester: IV

Year: 2021-22

Course Title: Pharmacognosy and Phytochemistry I	Course Code: BP 405 T
Total Contact Credits: 45	Duration of ESA: 3 Hours
ESA Marks: 75	ISA Marks: 25
Lesson Plan Author: Mr. R V Karadi	Checked By: Dr (Mrs) K S Akki

Course Outcomes (COs):

At the end of the course, the student should be able to:

COURSE OUTCOMES (COs)	
BP 405 T.1	Summarize the history and scope of Pharmacognosy along with introduction, classification cultivation, collection, processing, storage and quality control of crude drugs.
BP 405 T.2	Describe the methods involved in conservation of medicinal plants with special emphasis to plant tissue culture technique.
BP 405 T.3	Summarize the role of pharmacognosy in various systems of medicine.
BP 405 T.4	Describe the pharmacognostic scheme of plant products, primary and secondary metabolites along with significance of natural allergens and bioactive chemicals derived from the marine source.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Pharmacognosy and Phytochemistry I	Semester: IV
Course Code: BP 405 T	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP 405 T.1	2	--	1	--	--	--	--	--	--	--	1
BP 405 T.2	--	--	--	2	--	--	--	--	--	2	1
BP 405 T.3	--	--	--	--	--	2	--	--	1	--	1
BP 405 T.4	2	--	--	--	--	--	--	--	--	--	1

Degree of compliance **1** Low

2: Medium

3: High

Semester: IV

Year: 2021-22

Course Title: Medicinal Chemistry-I	Course Code: BP406P
Total Contact Credits: 60	Duration of ESA: 3 Hours
ESA Marks: 35	ISA Marks: 15
Lesson Plan Author: Dr. Pradeep Kumar M.R.	Checked By: Dr. PM Ronad

Course Outcomes (COs):

At the end of the course, the student should be able to:

COURSE OUTCOMES (COs)	
BP406P.1	Carryout the preparation of drugs/ intermediates.
BP406P.2	Carryout the assay of drugs.
BP406P.3	Determine the partition coefficient of drugs..

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Medicinal Chemistry-I	Semester: IV
Course Code: BP406P	Year: 2021-22

Code	Program Outcomes PO's										
	1	2	3	4	5	6	7	8	9	10	11
BP406P.1	1	2	2	--	--	--	--	--	--	--	1
BP406P.2	1	2	2	--	--	--	--	--	--	--	--
BP406P.3	1	2	2	--	--	--	--	--	--	--	--

Degree of compliance 1 Low

2: Medium

3: High

Department of Pharmaceutics

Course Title: Physical Pharmaceutics -II	Course Code: BP407P
Total Contact Credits: 60	Duration of ESA: 3 Hours
ESA Marks: 35	ISA Marks: 15
Lesson Plan Author: Ms V.V Nagathan	Checked By: Dr. SP Hiremath

Course Outcomes (COs):

At the end of the course, the student should be able to:

COURSE OUTCOMES (COs)	
BP407P.1	Determine the physicochemical properties of drug molecules.
BP407P.2	Explain , determine rate constants & assessment of stability of drug
BP407P.3	Determine properties of powder.
BP407P.4	Formulation & evaluation of suspensions.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Physical Pharmaceutics-II	Semester: IV
Course Code: BP407 P	Year: 2021-22

	Course Outcomes (COs)	PO's										
		1	2	3	4	5	6	7	8	9	10	11
BP407P.1	Determine the physicochemical properties of drug molecules.	3	2	-	2	--	--	--	--	--	--	2
BP407P.2	Explain , determine rate constants & assessment of stability of drug	3	2	2	2	-	-	--	-	-	-	
BP407P.3	Determine properties of powder.	3	2	2	2	--	--	--	--	--	--	
BP407P.4	Formulation & evaluation of suspensions.	3	2	2	2	--	--	--	--	--	--	--

Department of Pharmacology

Semester: IV

Year: 2021-22

Course Title: Pharmacology -I	Course Code: <u>BP408P</u>
Total Contact Credits: 60	Duration of ESA: 3 Hours
ESA Marks: 35	ISA Marks: 15
Lesson Plan Author: Mr S. B. Patil	Checked By: Dr. P. C. Gadad

Course Outcomes (COs):

At the end of the course, the student should be able to:

COURSE OUTCOMES (COs)	
BP408P.1	Assimilate the different instruments, common laboratory animals and their maintenance employed in the experiments.
BP408P.2	Comprehend the techniques of route of drug administration in laboratory animals.
BP408P.3	Analyze the effect of drugs on animals by simulated experiments

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Pharmacology -I	Semester: IV
Course Code: <u>BP408P</u>	Year: 2021-22

Code	Program Outcomes PO's										
	1	2	3	4	5	6	7	8	9	10	11
BP408P.1		2	2	3			2				
BP408P.2		2	2	3			2				
BP408P.3		2	2	3			1				

Degree of compliance 1 Low

2: Medium

3: High

Department of Pharmacognosy

Semester: IV

Year: 2021-22

Course Title: Pharmacognosy and Phytochemistry I	Course Code: BP409 P
Total Contact Credits: 60	Duration of ESA: 3 Hours
ESA Marks: 35	ISA Marks: 15
Lesson Plan Author: Dr. H.N Sholapur	Checked By: Dr. K.P. Manjunath

Course Outcomes (COs):

At the end of the course, the student should be able to:

COURSE OUTCOMES (COs)	
BP409P.1	Identify the unorganized crude by chemical tests
BP409P.2	Standardize the crude drugs by quantitative microscopic evaluation methods.
BP409P.3	Standardize the crude drugs by various physical evaluation methods.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Pharmacognosy and Phytochemistry I	Semester: IV
Course Code: BP408P	Year: 2021-22

Code	Program Outcomes PO'S										
	1	2	3	4	5	6	7	8	9	10	11
BP409P.1	1	--	2	--	--	--	--	--	--	--	--
BP409P.2	2	--	2	--	--	--	--	--	--	--	--
BP409P.3	2	--	2	--	--	--	--	--	--	--	--

Degree of compliance 1 Low

2: Medium

3: High

Course Plan

Semester: V	Year: 2021-22
Course Title: Medicinal Chemistry-II	Course Code: BP501.T
Total Contact Hours: 45	Duration of ESA: 3 Hours
ESA Marks: 75	ISA Marks: 25
Lesson Plan Author: Dr. BM Dinnimath	Checked By: Dr. SS Honnali

Course Outcomes (COs):

At the end of the course, the student should be able to:

	Course Outcomes (COs)
BP501T.1	Explain in detail about medicinal compounds used as Antihistaminics, Proton Pump Inhibitors and antineoplastics
BP501T.2	Explain in detail about medicinal compounds used as anti hypertensives diuretics and anti anginal drugs
BP501T.3	Explain in detail about medicinal compounds used Cardio Vascular System disorders
BP501T.4	Explain in detail about medicinal compounds used in Endocrine System
BP501T.5	Explain in detail about medicinal compounds used as Antidiabetics and Local anaesthetics

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Medicinal Chemistry II	Semester: V
Course Code: BP 501 T	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP501T.1	2				1		1	1			1
BP501T.2	2				1		1	1			1
BP501T.3	2				1		1	1			1
BP501T.4	2				1		1	1			1
BP501T.5	2				1		1	1			1

Degree of compliance: 1 – Low 2 – Medium 3 - High

Course Plan

Semester: 5

Year: 2018-19

Course Title:	Course Code: BP502T
Total Contact Credits: 45	Duration of SEE: 3 Hours
Semester End Examination (SEE) Marks:75	Continuous IA Marks: 25
Lesson Plan Author: Dr.F.S.Dasankoppa	Date: 04.05.2018
Checked By: Dr. V.G.Jamakandi	Date: 15.05.2018

Course Outcomes (COs):

At the end of the course, the student should be able to:

Code	
BP502T.1	Define and express the Preformulation characterization of drug excipients and packaging components in development of bioavailable and stable dosage forms.
BP502T.2	Compile formulation consideration and technology involved in development of solid, liquid, parenteral dosage forms and cosmetics
BP502T.3	Identify different equipment used during manufacturing and quality control testing of various dosage forms.
BP502T.4	Develop skills in design and analyze formulation, quality control and packaging of solid, liquid, parenteral dosage forms and cosmetics
BP502T.5	Create plant design for the production of non-sterile and sterile Pharmaceuticals.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Industrial Pharmacy	Semester: 5
Course Code: BP502T	Year: 2018-19

	1	2	3	4	5	6	7	8	9	10	11
BP502T.1	3	2	3	-	-	-	-	-	-	-	-
BP502T.2	-	3	3	-	-	-	-	-	-	-	-
BP502T.3	-	-	2	3	-	-	-	-	-	-	-
BP502T.4	-	3	3	2	2	-	-	2	1	-	-
BP502T.5	-	3	-	3	-	-	2	-	-	-	2

Degree of compliance: 1 – Low 2 – Medium 3 - High

Course Plan

Semester: V	Year: 2021-22
Course Title: Pharmacology-II	Course Code: BP503.T
Total Contact Hours: 45	Duration of ESA: 3 Hours
ESA Marks: 75	ISA Marks: 25
Lesson Plan Author: Mrs Laxmi Pattanashetti	Checked By: Dr. P.C. Gadad

Course Outcomes (COs):

At the end of the course, the student should be able to:

Code	Course Outcomes (COs)
BP 503 T.1	Understand the mechanism of drug action and its relevance in the treatment of different diseases
BP 503 T.2	To understand the therapeutic uses and adverse effects of the drugs
BP 503 T.3	Apply the basic pharmacological knowledge in the treatment of various diseases related to cardiovascular diseases, urinary, endocrine systems.
BP 504 T.4	Understand the treatment of diseases related to autacoids and emphasis the basic principles of bioassays
BP 504 T.5	Appreciate correlation of pharmacology with related medical sciences

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Pharmacology-II	Semester: V
Course Code: BP 503.T	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP 503.T.1	2	1	--	--	--	--	--	--	--	--	1
BP 503.T.2	2	--	--	--	--	1	--	--	--	--	--
BP 503T.3	2	--	--	--	--	1	--	--	--	--	2
BP 503T.4	2	--	--	--	--	--	--	1	--	--	2
BP 503T.5	2	--	--	--	--	--	--	--	1	--	--

Degree of compliance 1: Low

2: Medium

3: High

Course Plan

Semester: V	Year: 2021-22
Course Title: Pharmacognosy and Phytochemistry-II	Course Code: BP504T
Total Contact Hours: 45	Duration of ESA: 3 Hours
ESA Marks: 75	ISA Marks: 25
Lesson Plan Author: Dr (Mrs) K S Akki	Checked By: Mr R V Karadi

Course Outcomes (COs):

At the end of the course, the student should be able to:

Code	Course Outcomes (COs)
BP504T.1	Define, explain and investigate the basic techniques of biosynthesis of secondary metabolites in higher plants.
BP504T.2	Explain the chemistry and pharmacognostic scheme of crude drugs containing various classes of secondary metabolites.
BP504T.3	Apply different methods of isolation, identification and analysis of phytoconstituents.
BP504T.4	Apply the latest technique of chromatographic and spectroscopic in isolation, purification and identification of phytoconstituents.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Pharmacognosy and Phytochemistry-II	Semester: V
Course Code: BP 504T	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP504T.1	2		1								
BP504T.2	2					2			2		
BP504T.3	2	2		2							1
BP504T.4	1		1	2							1

Degree of compliance: 1 – Low 2 – Medium 3 - High

Course Plan

Semester: V	Year: 2021-22
Course Title: Pharmaceutical Jurisprudence	Course Code: BP505.T
Total Contact Hours: 45	Duration of ESA: 3 Hours
ESA Marks: 75	ISA Marks: 25
Lesson Plan Author: Miss. Varsha Dalal	Checked By: Dr. B. M. Dinnimath

Course Outcomes (COs):

At the end of the course, the student should be able to:

Code	Course Outcomes (COs)
BP505.1	The Pharmaceutical legislations and their implications on the development and marketing of pharmaceuticals.
BP505.2	Various Indian pharmaceutical Acts and Laws
BP505.3	The regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals
BP505.4	The code of ethics during the pharmaceutical practice

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Pharmaceutical Jurisprudence	Semester: V
Course Code: BP.505 T	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP505.1	2				1	2	3	1	3		2
BP505.2	2				1	1	3	1	2		2
BP505.3	2				2	1	3	1	2		2
BP505.4	2				2	1	3	1	2		2

Degree of compliance 1 Low

2: Medium

3: High

Course Plan

Semester:5

Year: 2019-20

Course Title Industrial pharmacy	Course Code: BP506 P
Total Contact Credits: 60	Duration of ESA: 4 Hours
ESA Marks:35	IA Marks:15
Lesson Plan Author: Dr.F.S.Dasankoppa	Date: 4.05.2019
Checked By: Dr. S.P.Hiremath	Date: 15.05.2019

Course Outcomes (COs):

At the end of the course, the student should be able to:

Code	
BP 506 P.1	Define and express the Preformulation characterization of drugs in development of bioavailable and stable dosage forms.
BP 506 P.2	Illustrate different techniques in manufacture of Solid, liquid and parenteral dosages
BP 506 P.3	Demonstrate skills in design and Evaluate and interpret there to in formulation, quality control and packaging of solid, liquid and parenteral dosages

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Industrial Pharmacy	Semester:V
Course Code: BP 506 P	Year: 2018-19

MAPPING OF CO – PO MATRICES

Subject: Industrial Pharmacy

	Course Outcomes (COs) / Program Outcomes (POs)	1	2	3	4	5	6	7	8	9	10	11
BP 506 P.1	Define and express the Preformulation characterization of drugs in development of bioavailable and stable dosage forms.	3	1	1	-	-	-	-	-	-	-	-
BP 506 P.2	Illustrate different techniques in manufacture of Solid, liquid and parenteral dosages	-	2	2	3	-	1	-	-	2	-	-
BP 506 P.3	Demonstrate skills in design and Evaluate and interpret there to in formulation, quality control and packaging of solid, liquid and parenteral dosages	-	-	3	3	-	-	-	2	-	-	1

Note: Correlation levels 1, 2 or 3 as defined below:

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)

If there is no correlation, put ‘

Course Plan

Semester: V	Year: 2021-22
Course Title: Pharmacology-II	Course Code: BP 507P
Total Contact Hours: 60	Duration of ESA: 3 Hours
ESA Marks: 35	ISA Marks: 15
Lesson Plan Author: Mrs. Laxmi Pattanashetti	Checked By: Dr. P.C. Gadad

Course Outcomes (COs):

At the end of the course, the student should be able to:

Code	Course Outcomes (COs)
BP507 P.1	Demonstrate isolation of different organs/tissues from the laboratory animals by simulated experiments.
BP507 P.2	Demonstrate the various receptor actions using isolated tissue preparation.
BP507 P.3	Analyze the effect of drugs on animals by simulated experiments.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Pharmacology-II	Semester: V
Course Code: BP507P	Year: 2021-22

Code	Program Outcomes (Pos)										
	1	2	3	4	5	6	7	8	9	10	11
BP507 P.1	1		2	--	--	--	--	--	--	--	1
BP507 P.2	1		2	--	--	--	--	--	--	--	--
BP507 P.3	1		2	--	1	--	--	--	--	--	--

Degree of compliance 1 Low 2: Medium 3: High

Course Plan

Semester: V	Year: 2021-22
Course Title: Pharmacognosy and Phytochemistry II	Course Code: BP508 P
Total Contact Hours: 60	Duration of ESA: 4 Hours
ESA Marks: 35	ISA Marks: 15
Lesson Plan Author: Dr. K.SAkki	Checked By: Mr. RV Kardi

Course Outcomes (COs):

At the end of the course, the student should be able to:

Code	Course Outcomes (COs)
BP508 P.1	Identify the organized drugs by studying its macroscopical and microscopical characters.
BP508 P.2	Identify the unorganized crude drugs by chemical tests
BP508 P.3	Isolate and identify phytoconstituents using chromatographic methods.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Pharmacognosy and Phytochemistry II	Semester: V
Course Code: BP508P	Year: 2021-22

Code	Program Outcomes (Pos)										
	1	2	3	4	5	6	7	8	9	10	11
BP508 P.1	2	--	--	--	--	--	--	--	--	--	1
BP508 P.2	2	--	--	--	--	--	--	--	--	--	1
BP508 P.3	2	1	1	--	--	1	--	--	2	--	1

Degree of compliance 1: Low

2: Medium

3: High

Course Plan

Semester: VI	Year: 2020-21
Course Title: MEDICINAL CHEMISTRY III	Course Code: BP601T
Total Contact Hours: 45	Duration of SEE: 3 Hours
Semester End Examination (SEE) Marks:75	ISA Marks: 25
Lesson Plan Author: Dr. (Smt.) A.A. Ankalikar	Checked By: Dr. Pradeepkumar MR

Course Outcomes (COs):

At the end of the course, the student should be able to

COURSE OUTCOMES (COs)	
BP601T.1	Illustrate the SAR and MOA of anti-infectives, anti-fungal, anti-UTI, antiprotozoal and anthelmintic class of drugs.
BP601T.2	Describe the principles and applications of Drug Design and combinatorial chemistry.
BP601T.3	Write the chemical classification, MOA and SAR of antitubercular, antiviral, antimalarial, sulphonamides and antibiotics.
BP601T.4	Explain the chemistry, SAR, MOA and therapeutic uses of antineoplastic agents
BP601T.5	Demonstrate chemical synthesis of selected medicinal compounds.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Medicinal Chemistry-III	Semester: VIII
Course Code: BP601T	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP601T.1	3										2
BP601T.2	3	3									3
BP601T.3	3	3									
BP601T.4	3	3									
BP601T.5			3	3							

Degree of compliance 1 Low

2: Medium

3: High

Course Plan

Semester: VI	Year: 2021-22
Course Title: PHARMACOLOGY-III	Course Code: BP602 T
Total Contact Hours: 45	Duration of SEE: 3 Hours
Semester End Examination (SEE) Marks:75	ISA Marks: 25
Lesson Plan Author: Mrs. Laxami Pattanashetti	Checked By: Dr. P.C. Gadad

Course Outcomes (COs):

At the end of the course, the student should be able to

COURSE OUTCOMES (COs)	
BP602T.1	Explain the pharmacology of drugs acting on respiratory system and gastrointestinal tract.
BP602T.2	Comprehend the general principles, mechanism of action and common toxicities of chemotherapeutic agents.
BP602T.3	Understand the mechanism of drug action and its relevance in the treatment of different infectious disease.
BP602T.4	Appreciate the importance of chronopharmacology and pharmacology of drugs acting on immune system.
BP602T.5	Comprehend the principle of toxicology and treatment of various poisoning.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: PHARMACOLOGY-III	Semester: VIII
Course Code: BP602T	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP602T.1				2							2
BP602T.2						3	2				
BP602T.3					2	3					
BP602T.4								3			1
BP602T.5							3				2

Degree of compliance 1 Low

2: Medium

3: High

Course Plan

Semester: VI	Year: 2021-22
Course Title: HERBAL DRUG TECHNOLOGY	Course Code: BP603 T
Total Contact Hours: 45	Duration of SEE: 3 Hours
Semester End Examination (SEE) Marks:75	ISA Marks: 25
Lesson Plan Author: Dr. (Smt.) K.S. Akki	Checked By: Dr. K.P. Manjunath

Course Outcomes (COs):

At the end of the course, the student should be able to

COURSE OUTCOMES (COs)	
BP603T.1	Describe the Basic principles and standardization involved in Ayurveda, Siddha, Unani and Homeopathy
BP603T.2	Explain the WHO & ICH guidelines for the assessment of herbal drugs
BP603T.3	Explain the sources and description of raw materials of herbal origin
BP603T.4	Illustrate the Patent, IPR, Farmers right, Breeder's right, Bioprospecting and Biopiracy
BP603T.5	Demonstrate the conventional herbal formulations like syrups, mixtures and tablets and Novel dosage forms like phytosomes

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: HERBAL DRUG TECHNOLOGY	Semester: VI
Course Code: BP603T	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP603T.1	3										2
BP603T.2	3	3									3
BP603T.3	3	3									
BP603T.4	3	3									
BP603T.5		2	3	3							3

Degree of compliance 1 Low

2: Medium

3: High

Course Plan

Name of the Course : Biopharmaceutics and Pharmacokinetics	
Course code: BP604T	B Pharm- VI Sem
Teaching hours: 45 hrs	Maximum Marks: 70

COURSE OUTCOMES (CO'S)

After Completion, of Course student will be able to

Code	Course Outcomes (COs)
BP604T.1	Understand the basic concepts, mechanisms in biopharmaceutics and pharmacokinetics along with the significance
BP604T.2	Determine various pharmacokinetic parameters by using various mathematical models
BP604T.3	Describe concept of bioavailability and bioequivalence of drug products
BP604T.4	Identify the various causes of nonlinear pharmacokinetics

CO-PO Articulation Matrix

Code	1	2	3	4	5	6	7	8	9	10	11
BP604T.1	2	1	1								1
BP604T.2	1	2	2	2							
BP604T.3	2	1	2								1
BP604T.4	1		2	1							1

Course Plan

Semester: VI	Year: 2021-22
Course Title: PHARMACEUTICAL BIOTECHNOLOGY	Course Code: BP605 T
Total Contact Hours: 45	Duration of SEE: 3 Hrs
Semester End Examination (SEE) Marks:75	ISA Marks: 25
Lesson Plan Author: Shri. R.V. Karadi	Checked By: Dr. K.P. Manjunath

Course Outcomes (COs):

At the end of the course, the student should be able to

COURSE OUTCOMES (COs)	
BP605T.1	Demonstrate the Scientific application of biotechnology in the field of genetic engineering, medicine and fermentation technology makes the subject interesting.
BP605T.2	Describe the importance of Immobilized enzymes in Pharmaceutical Industries
BP605T.3	Explain the Genetic engineering applications in relation to production of pharmaceuticals
BP605T.4	Illustrate the Importance of Monoclonal antibodies in Industries
BP605T.5	Describe the use of microorganisms in fermentation technology.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: PHARMACEUTICAL BIOTECHNOLOGY	Semester: VIII
Course Code: BP605T	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP605T.1	3										2
BP605T.2	3	3									3
BP605T.3	3	3									
BP605T.4	3	3									
BP605T.5		2	3	3							3

Degree of compliance 1 Low

2: Medium

3: High

Course Plan

Semester: VI	Year: 2021-22
Course Title: PHARMACEUTICAL QUALITY ASSURANCE	Course Code: BP606 T
Total Contact Hours: 45	Duration of SEE: 3 Hrs
Semester End Examination (SEE) Marks:75	ISA Marks: 25
Lesson Plan Author: Ms.VV Nagathan	Checked By: Dr. FS Dasanakoppa

Course Outcomes (COs):

At the end of the course, the student should be able to

COURSE OUTCOMES (COs)	
BP606T.1	Describe the cGMP aspects in a pharmaceutical industry
BP606T.2	Explain the importance of documentation maintenance in pharmaceutical industry
BP606T.3	Illustrate the scope of quality certifications applicable to pharmaceutical industries
BP606T.4	Demonstrate the ICH Guidelines; Quality by design (QbD)
BP606T.5	Demonstrate the responsibilities of QA & QC departments

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: PHARMACEUTICAL QUALITY ASSURANCE	Semester: VI
Course Code: BP606T	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP606T.1	3										2
BP606T.2	3	3	2								3
BP606T.3	3	3	2								
BP606T.4	3	3	2								
BP606T.5		2	3	3							3

Degree of compliance 1 Low

2: Medium

3: High

Course Plan

Semester: VI	Year: 2021-22
Course Title: Medicinal chemistry III – Practical	Course Code: BP607 P
Total Contact Hours: 60	Duration of ESA: 4 Hours
ESA Marks: 35	ISA Marks: 15
Lesson Plan Author: Dr. (Smt.).A.A. Ankalikar	Checked By: Dr. Pradeepkumar MR

Course Outcomes (COs):

At the end of the course, the student should be able to:

Code	Course Outcomes (COs)
BP607 P.1	Write the principle and reactions involved in assay of medicinal compounds.
BP607 P.2	Carryout the assay of some medicinal compounds.
BP607 P.3	Explain the principle, reaction, mechanism involved in the preparation of medicinal compounds and required interpretation

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Medicinal chemistry III – Practical	Semester: VI
Course Code: BP607 P	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP607 P.1	3	2									2
BP607 P.2	3	3									
BP607 P.3	3	2	3								3

Degree of compliance 1 Low

2: Medium

3: High

Course Plan

Semester: VI	Year: 2021-22
Course Title: Pharmacology III – Practical	Course Code: BP608 P
Total Contact Hours: 60	Duration of ESA: 4 Hours
ESA Marks: 35	ISA Marks: 15
Lesson Plan Author: Mrs. Laxami Pattanashetti	Checked By: Dr. P.C. Gadad

Course Outcomes (COs):

At the end of the course, the student should be able to:

Code	Course Outcomes (COs)
BP608 P.1	Understand the estimation of serum biochemical parameters by using semi- auto-analyzer.
BP608 P.2	Understand the calculation of the acute oral toxicity (LD50) dose of a drug as per OECD guidelines.
BP608 P.3	Simulate the effect of various drugs on experimental animals and illustration pharmacokinetic parameters by computer assisted learning tools.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Pharmacology III – Practical	Semester: VI
Course Code: BP608 P	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP608 P.1	3	3									
BP608 P.2	3				3	2					
BP608 P.3	3	3									3

Degree of compliance 1 Low

2: Medium

3: High

Course Plan

Semester: VI	Year: 2021-22
Course Title: Herbal Drug Technology – Practical	Course Code: BP609 P
Total Contact Hours: 60	Duration of ESA: 4 Hours
ESA Marks: 35	ISA Marks: 15
Lesson Plan Author: Dr. (Smt.) K.S. Akki	Checked By: Dr. K.P. Manjunath

Course Outcomes (COs):

At the end of the course, the student should be able to:

Code	Course Outcomes (COs)
BP609 P.1	Demonstrate the excipients of natural origin
BP609 P.2	Illustrate the monograph analysis of herbal drugs
BP609 P.3	Describe the Chemical content from natural origin

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Herbal Drug Technology – Practical	Semester: VI
Course Code: BP609 P	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP609 P.1	3	2									2
BP609 P.2	3	3									
BP609 P.3	3	2	3								3

Degree of compliance 1 Low

2: Medium

3: High

Course Plan

Semester: VII	Year: 2021-22
Course Title: Instrumental Methods of Analysis Theory	Course Code: BP701 T
Total Contact Hours: 45	Duration of SEE: 3 Hours
Semester End Examination (SEE) Marks: 75	ISA Marks: 25
Lesson Plan Author: Dr G A Hampannavar	Checked By: Dr. P M Ronad

Course Outcomes (COs):

At the end of the course, the student should be able to

COURSE OUTCOMES (COs)	
BP701 T.1	Explain the basic principles and theories of spectroscopy and chromatography.
BP701 T.2	Describe the concept, instrumentation and operations of spectroscopic and chromatographic tools.
BP701 T.3	Distinguish the specialties and applications of various spectroscopic and chromatographic methods.
BP701 T.4	Measure and estimate pharmaceutical compounds using spectroscopic and chromatographic techniques.
BP701 T.5	Summarize, interpret and predict the structure of medicinal compounds using spectroscopic and chromatographic data.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Instrumental Methods of Analysis Theory	Semester: VII
Course Code: BP701T	Year: 2021-22

	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP701 T.1	3		3								2
BP701 T.2	3		3								3
BP701 T.3	3		3								
BP701 T.4	3		2								
BP701 T.5	2		3		3						

Degree of compliance 1 Low

2: Medium

3: High

Course Plan

Semester: VII	Year: 2021-22
Course Title: INDUSTRIAL PHARMACY-II Theory	Course Code: BP702 T
Total Contact Hours: 45	Duration of SEE: 3 Hours
Semester End Examination (SEE) Marks: 75	ISA Marks: 25
Lesson Plan Author: Mr. HARISH K H	Checked By: Dr. S.P. Hiremath

Course Outcomes (COs):

At the end of the course, the student should be able to

COURSE OUTCOMES (COs)	
BP702 T.1	Describe the process of pilot plant and scale up of pharmaceutical dosage forms.
BP702 T.2	Explain the process of technology transfer from lab scale to commercial batch.
BP702 T.3	Demonstrate the different Laws and Acts that regulate pharmaceutical industry.
BP702 T.4	Illustrate the approval process and regulatory requirements for drug products.
BP702 T.5	Demonstrate the Total Quality management & Certifications.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: INDUSTRIAL PHARMACY-II Theory	Semester: VII
Course Code: BP702T	Year: 2021-22

	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP702 T.1	3										2
BP702 T.2	3	3									3
BP702 T.3	3	3									
BP702 T.4	3	3									
BP702 T.5	2	2	3	3							

Degree of compliance **1** Low

2: Medium

3: High

Course Plan

Semester: VII	Year: 2020-21
Course Title: PHARMACY PRACTICE-Theory	Course Code: BP703 T
Total Contact Hours: 45	Duration of SEE: 3 Hours
Semester End Examination (SEE) Marks: 75	ISA Marks: 25
Lesson Plan Author: Dr. Vasha Dhalal	Checked By: Dr. S.B. Namagound

Course Outcomes (COs):

At the end of the course, the student should be able to

COURSE OUTCOMES (COs)	
BP703 T.1	Demonstrate the various drug distribution methods in a hospital pharmacy stores management and inventory control.
BP703 T.2	Describe the monitoring drug therapy of patient through medication chart review, clinical review, obtain medication history interview and counsel the patients.
BP703 T.3	Identify drug related problems, detect and assess adverse drug reactions.
BP703 T.4	Interpret selected laboratory results (as monitoring parameters in therapeutics) of specific disease states and know pharmaceutical care services.
BP703 T.5	Explain the concept of Rational drug therapy and patient counseling in community pharmacy.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: PHARMACY PRACTICE-Theory	Semester: VII
Course Code: BP703T	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP703 T.1	3										2
BP703 T.2	3	3									3
BP703 T.3	3	3									2
BP703 T.4	3	3									2
BP703 T.5	2	2	3	3							2

Degree of compliance 1 Low

2: Medium

3: High

Course Plan

Name of the Course : Novel Drug Delivery System	
Course code: BP 704T	B Pharm- VII Sem
Teaching hours: Theory 45 Hrs	Maximum Marks: 100

COURSE OUTCOMES (CO'S)

After Completion, of Course student will be able to

Code	Course Outcomes (COs)
BP 704.1 T	Understand basic concepts of controlled drug delivery system
BP 704.2 T	Describe different approaches for development of various novel drug delivery system
BP 704.3 T	Study the criteria for selection of drugs and polymers for development of novel drug delivery system
BP 704.4 T	Describe formulation techniques evaluation and applications of novel drug delivery system

CO-PO Articulation Matrix

Code	1	2	3	4	5	6	7	8	9	10	11
BP 704.1 T	2	1									2
BP 704.2 T	2	1		2	1						
BP 704.3 T	1	2	2								
BP 704.4 T	1	1	2	2	1						

Course Plan

Semester: VII	Year: 2020-21
Course Title: Instrumental Methods of Analysis–Practical	Course Code: BP705 P
Total Contact Hours: 60	Duration of ESA: 04 Hours
ESA Marks: 35	ISA Marks: 15
Lesson Plan Author: Dr. G.A. Hampannavar	Checked By: Dr. Pradeepkumar MR

Course Outcomes (COs):

At the end of the course, the student should be able to:

Code	Course Outcomes (COs)
BP705 P.1	Discuss the principle and theories involved in the spectroscopy
BP705 P.2	Explain the principle involved in the photometry
BP705 P.3	Demonstrate the principle involved in the chromatography

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Instrumental Methods of Analysis–Practical	Semester: VII
Course Code: BP705 P	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP705 P.1	3	2									2
BP705 P.2	3	3									
BP705 P.3	3	2	3								3

Degree of compliance 1 Low

2: Medium

3: High

Course Plan

Name of the Course: Practice School	
Course Code: BP706 PS	12 Hours / week

Course Outcomes (COs):

At the end of the course, the student should be able to

Code	Course Outcomes (COs)
BP706 PS.1	Apply and Illustrate the Pharmacy Knowledge
BP706 PS.2	Justify and Prepare the findings of assigned task
BP706 PS.3	Analyze and Plan the appropriate methodology for the assigned task
BP706 PS.4	Measure and compile the results of the assigned task
BP706 PS.5	Plan, execute and complete the task as a team

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: Practice School	Semester: VII
Course Code: BP706 PS	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP706 PS.1	3	2	3	2	2	2	2	3	2	3	2
BP706 PS.2	3	3	3	2	2	2	2	3	2	3	3
BP706 PS.3	3	3	3	2	2	2	2	3	2	3	2
BP706 PS.4	3	3	3	2	2	2	2	3	2	3	2
BP706 PS.5	2	2	3	3	2	2	2	3	2	3	2

Degree of compliance 1 Low

2: Medium

3: High

Course Plan

Semester: III	Year: 2021-22
Course Title: Biostatistics and research Methodology	Course Code: BP801 T
Total Contact Hours: 45	Duration of ESA: 3 Hours
ESA Marks:75	ISA Marks: 25
Lesson Plan Author: Dr. F.S. Dasankoppa	Checked By: Dr. S.P. Hiremath

Course Outcomes (CO):

At the end of the course, the student should be able to:

Code	Course Outcomes(COs)
BP801 T.1	Define and apply various biostatistical methods for pharmaceutical data analysis
BP801 T.2	Apply the appropriate biostatistical methods required for a particular research design.
BP801 T.3	Identify methods for data Representation and Analysis
BP801 T.4	Illustrate appropriate research design and develop appropriate research hypothesis and Testing (Parametric and Non Parametric)
BP801 T.5	Paraphrase Clinical Trail Protocol, observational and experimental Studies
BP801 T.6	Develop Skills for Design of experiments using various software

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP801 T.1	3	3	-	-	3	-	-	3	-	-	2
BP801 T.2	3	2	2	3	2	2	-	2	2	-	3
BP801 T.3	2	-	2	3	-	-	2	-	-	-	-
BP801 T.4	2	3	3	-	2	-	-	3	2	2	-
BP801 T.5	2	-	3	-	-	-	-	-	-	2	1
BP801 T.6	2	-	1		3	3	-	2	3		3

Degree of compliance: 1 – Low 2 – Medium 3 – High

Course Plan

Semester :VIII	Year : 2021-22
Course Title : : PHARMACOVIGILANCE (Theory)	Course Code: BP 805T .
Total Contact Hours : 45	Duration of ESA : 3 Hours
ESA Marks : 75	ISA Marks : 25
Lesson Plan Author : Mrs. LA Pattanashetti	Checked By: Dr. PC Gadad

Course Outcomes (COs):

At the end of the course, the student should be able to:

COURSE OUTCOMES (COs)	
BP805T.1	To Explain about development of pharmacovigilance as a science, basic terminologies used in pharmacovigilance,
BP805T.2	Train students on establishing pharmacovigilance programme in an organization, various methods that can be used to generate safety data and signal detection
BP805T.3	Detect new adverse drug reactions and their assessment in line with International standards for classification of diseases and drugs.
BP805T.4	Explain the Pharmacovigilance Program of India (PvPI) requirement for ADR reporting in India as well as ICH guidelines for ICSR, PSUR, expedited reporting, pharmacovigilance planning
BP805T.5	Develops the skills of classifying drugs, diseases and adverse drug reactions for CIOMS requirements for ADR reporting and writing case narratives of adverse events and their quality.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: PHARMACOVIGILANCE (Theory)	Semester: VIII
Course Code BP 805T	Year: 2021-22

Code	Program Outcomes PO's										
	1	2	3	4	5	6	7	8	9	10	11
BP805T.1	1	2	2	-	-	-	-	-	-	-	-
BP805T.2	1	2	1	-	-	-	-	-	-	-	-
BP805T.3	1	1	2	-	-	-	-	-	-	-	-
BP805T.4	1	2	2	-	-	-	-	-	-	-	-
BP805T.5	1	1	2	-	-	-	-	-	-	-	-

Degree of compliance 1 Low 2: Medium 3: High

Course Plan

Semester :VIII	Year : 2021-22
Course Title : : ADVANCED INSTRUMENTATION TECHNIQUES	Course Code: BP811ET .
Total Contact Hours : 45	Duration of ESA : 3 Hours
ESA Marks : 75	ISA Marks : 25
Lesson Plan Author : Dr. GA Hampannavar	Checked By: Dr. PM Ronad

Course Outcomes (COs):

At the end of the course, the student should be able to:

COURSE OUTCOMES (COs)	
BP811ET.1	understand the advanced instruments used and its applications in drug analysis,
BP811ET.2	Explain the chromatographic separation and analysis of drugs.
BP811ET.3	understand the calibration of various analytical instruments
BP811ET.4	Know analysis of drugs using various analytical instruments.
BP811ET.5	This subject is designed to impart advanced knowledge on the principles and instrumentation of spectroscopic and chromatographic hyphenated techniques. This also emphasizes on theoretical and practical knowledge on modern analytical instruments that are used for drug testing.

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Course Title: ADVANCED INSTRUMENTATION TECHNIQUES	Semester: VIII
Course Code BP811ET	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP811ET.1	1	2	2	-	-	-	-	-	-	-	-
BP811ET.2	1	2	1	-	-	-	-	-	-	-	-
BP811ET.3	1	1	2	-	-	-	-	-	-	-	-
BP811ET.4	1	2	2	-	-	-	-	-	-	-	-
BP811ET.5	1	1	2	-	-	-	-	-	-	-	-

Degree of compliance 1 Low 2: Medium 3: High

Course Plan

Name of the Course: Project Work	
Course Code: BP813PW	12 Hours / week

Course Outcomes (COs):

At the end of the course, the student should be able to

Code	Course Outcomes (COs)
BP813PW.1	Apply and Illustrate the Pharmacy Knowledge
BP813PW.2	Justify and Prepare the findings of assigned task
BP813PW.3	Analyze and Plan the appropriate methodology for the assigned task
BP813PW.4	Measure and compile the results of the assigned task
BP813PW.5	Plan, execute and complete the task as a team

Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs)

Name of the Course: Project	Semester: VIII
Course Code: BP813PW	Year: 2021-22

Code	Program Outcomes (POs)										
	1	2	3	4	5	6	7	8	9	10	11
BP813PW.1	1	2	3	2	2	3	2	3	2	3	2
BP813PW.2	2	3	3	3	2	2	2	3	3	3	3
BP813PW.3	1	3	2	2	2	2	3	2	2	3	3
BP813PW.4	2	2	3	2	3	2	2	3	2	2	2
BP813PW.5	2	2	3	3	2	2	2	3	2	3	2

Degree of compliance 1 Low

2: Medium

3: High