



RR COLLEGE OF PHARMACY

Chikkabanavara, Bangalore-560090
Accredited by NAAC with 'A' Grade

INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

B Pharm I Sem

Name of Course: Human Anatomy and Physiology I

Academic year: 2023-24

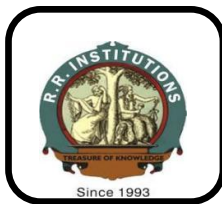
Program: B. Pharm I Sem

Faculty in Charge: Mr.Vijay Kumar J

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E /C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Understand anatomical location and structure of Osseous system, CVS, Sense organs.	R/AP	F/C	PO1, PO6 & PO9
CO2	Understand anatomical location and structure of Skeletal muscles, Lymphatic system & Haemopoietic system.	R/AP	F/C	PO1, PO6 & PO9
CO3	Interpret cell and Tissues.	U	C	PO3
CO4	Analyze the physiology Osseous system, CVS, Sense organs, Skeletal muscles, Lymphatic system & Haemopoietic system.	R/AP	F/C	PO1, PO6 & PO9
CO5	Understand the disorders and diseases associated with Osseous system, CVS, Sense organs.	R/AP	F/C	PO3, PO6, PO11.
CO6	Understand the disorders and diseases associated with Skeletal muscles, Lymphatic system & Haemopoietic system.	R/AP	F/C	PO3, PO6, PO11.



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Course out Comes and Programme outcomes

Name of Course: Human Anatomy and Physiology I

Academic year: 2023-24

Program:B. Pharm I Sem

Faculty in Charge: Mr. Mr.Vijay Kumar J

Section: Practical

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E /C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Understand anatomical structure of Osseous system and Histology of Tissues.	R/AP	F/C	PO1, PO6 & PO9
CO2	Examine RBC count.	U	C	PO3
CO3	Examine WBC count, Respiratory volums & Blood groups	U	C	PO3
CO4	Understand determination of Heamoglobin, Bleeding time and Clotting time.	R/AP	P	PO1, PO6 & PO9
CO5	Analyze Family planning devices.	R/AP	P	PO3, PO6, PO11.
CO6	Evaluate Organ systems like digestive system Urinary system, Cardiovascular system.	An	MC	PO1, PO6 & PO11



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Course out Comes and Programme outcomes

Name of Course: Pharmaceutical Analysis

Academic year: 2023-24

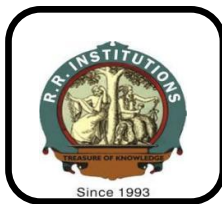
Program: B. Pharm I Sem

Faculty in Charge: Mrs. Poornima A N

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E /C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3.... PO11
CO1	Explain the Methods of expressing concentration, Preparation, standardization of molar and normal solutions, Errors-their Sources, types, methods to minimize errors.	U	C	PO1
CO2	Describe the Accuracy, precision and significant figures and to develop ,Analytical techniques and Acid-Base titration.	U	C	PO1
CO3	Explain the principles of titration and their indicators, classification, neutralization curves.	U	C	PO1
CO4	Explain the Non Aqueous titration, solvents, types and Precipitation titration,Complexometric titrations and types.	U	C	PO1
CO5	Explain the principals and steps involved in gravimetric, Redox titrations, conductometry.	U	C	PO1
CO6	Explain the principle and concept of potentiometry, polarography and their types.	U	C	PO1, PO4



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Course out Comes and Programme outcomes

Name of Course: Pharmaceutical Analysis

Academic year: 2023-24

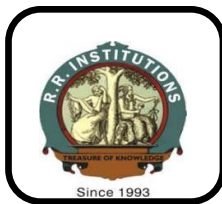
Program: B. Pharm I Sem

Faculty in Charge: Mrs. Poornima A N

Section: Practical

At the end of the course the student will be able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Prepare and standardize sodium hydroxide, sulphuric acid; Analyse Ammonium chloride by acid base titration.	U,An,Ap	P	PO1
CO2	Prepare and standardize potassium permanganate, Analyse Hydrogen Peroxide by permanganometry,	U,An,Ap	P	PO1
CO3	Prepare and standardize ceric ammonium sulphate and Analyse ferrous sulphate by cerimetry.	U,An,Ap	P	PO1
CO4	Prepare and standardize sodium thiosulphate; Analyse copper sulphate by Iodometry.	U,An,Ap	P	PO1
CO5	Analyse Calcium gluconate by Complexometry, Sodium benzoate by non aqueous titration. Sodium chloride by Precipitation titration.	U,An,Ap	P	PO1
CO6	Determine the strength of strong acid against strong base and mixture of strong acid and weak acid against strong base by conductometry and potentiometry	U,An,Ap	P	PO1, PO4



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmaceutics

Academic year: 2023-24

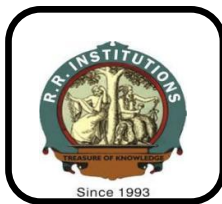
Program: B. Pharm I Sem

Faculty in Charge: Mr. Kiran

Section: Theory

At the end of the course the student will be able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Know the history of profession of pharmacy	U/R	F	PO1, PO7
CO2	Understand the Basics of different dosage forms, parts and handling of Prescription.	U/R/AP	F/P	PO1, PO7
CO3	Understand the Basics of Pharmaceutical incompatibilities, pharmaceutical calculations	U/R/AP	F/P	PO1, PO7
CO4	Understand the professional way of handling the Prescription.	U/R	F/P	PO1, PO7
CO5	Preparation of various conventional dosage forms	U/R	F/P	PO1, PO7



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Course out Comes and Programme outcomes

Name of Course: Pharmaceutics

Academic year: 2023-24

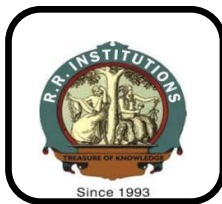
Program: B. Pharm I Sem

Faculty in Charge: Mr .Kiran

Section: Practicals

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Prepare Syrups and Elixirs.	Ap	p	PO1,PO4
CO2	Prepare Linctus and Solutions.	Ap	p	PO1,PO4
CO3	Prepare Suspensions and Emulsions.	Ap	p	PO1,PO4
CO4	Prepare Powders and Granules.	Ap	p	PO1,PO4
CO5	Prepare Suppositories, Semisolids.	Ap	p	PO1,PO4
CO6	Prepare Gargles and Mouthwashes	Ap	p	PO1,PO4



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Course out Comes and Programme outcomes

Name of Course: Pharmaceutical Inorganic chemistry I

Academic year: 2023-24

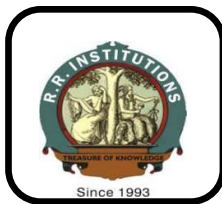
Program: B. Pharm I Sem

Faculty in Charge: Mr. Nagaraj N D

Section: Theory

At the end of the course the student will be able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Explain impurities in pharmaceutical substances.	AN/E	P	PO1, PO7,
CO2	Illustrate acid, bases and buffers.	AN/E	P	PO1,
CO3	Illustrate major extra and intra cellular electrolytes.	R,U	F/P	PO1,PO11
CO4	Describe dental products and radio pharmaceuticals	R,U	F/P	PO1,PO11
CO5	Understand the gastrointestinal agents	R,U	F/P	PO1,PO11
CO6	Explain the miscellaneous compounds.	R,U	F/P	PO1,PO11



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmaceutical Inorganic chemistry I

Academic year: 2023-24

Program: B. Pharm I Sem

Faculty in Charge: Ms. Shilpashree AT

Section: Practical

At the end of the course the student will be able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E /C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Perform limit test for inorganic compounds	AN	P	PO1,PO2,PO4
CO2	Perform limit test for inorganic compounds	AN	P	PO1,PO2,PO4
CO3	Perform Identification test inorganic compounds	AN	F	PO1,PO2,PO3,PO4
CO4	Perform Identification test inorganic compounds	AN	F	PO1,PO2,PO3,PO4
CO5	Perform Test for purity of inorganic compounds	E	P	PO1,PO2,PO3,PO4
CO6	Prepare inorganic pharmaceuticals	U	P	PO1,PO2,PO3,PO4



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Remedial Biology

Academic year: 2023-24

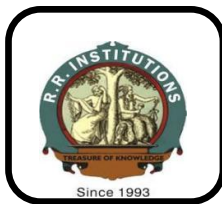
Program: B. Pharm I Sem

Faculty in Charge: Ms. Amritha Dutta Sen

Section: Theory

At the end of the course the student will be able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An /E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....P O11
CO 1	Understand living world and classify the five kingdoms of life and explain morphology of flowering plants.	U	C, F	PO1, PO6
CO 2	Explain body fluids circulation, Digestion and absorption, Breathing and respiration	U	C, F	PO1, PO6
CO 3	Explain excretory products natural control and Co-Ordination and Human reproduction	U	C, F	PO1, PO6
CO 4	Define plants and mineral nutrition and Photosynthesis, Respiration, Plant growth development.	U	C, F	PO1, PO6



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Course out Comes and Programme outcomes

Name of Course: Remedial Biology

Academic year: 23-24

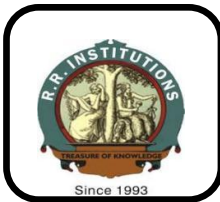
Program: B. Pharm I Sem

Faculty in Charge: Section: Ms. Amritha Dutta Sen

Practical

At the end of the course the student will be able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Explain Microscope Section cutting Mounting and Staining techniques	U	C, F	PO1, PO6
CO2	Explain About Cell and its inclusions	R, U	C, F	PO1
CO3	Evaluate the flowering plant parts by their morphology and microscopical Characters	U, A, N	C	PO1, PO4, PO6
CO4	Explain the frog by using computer models	U, A, N	C, P	PO1, PO4, PO6
CO5	Identify bones, determine blood group, blood pressure tidal volume	U, A, N	C, P	PO1, PO4, PO6, PO9



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B Pharm II Sem

Name of Course: Human Anatomy and Physiology II

Academic year: 2023-24

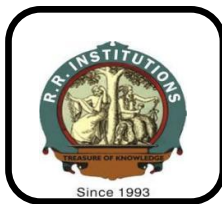
Program: B. Pharm II Sem

Faculty in Charge: Mr. Vijay Kumar J

Section: Theory

At the end of the course the student will be able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Understand the anatomical concepts of CNS, Digestive system, Respiratory system, Urinary system,	R/U	C	PO1, PO6
CO2	Understand the Reproductive system & Endocrine system, energetics and genetics.	U	C	PO1
CO3	Understand the physiology of CNS, Digestive system, Respiratory system.	R/U	C	PO1, PO6
CO4	Understand the physiology of Urinary system, Reproductive system & Endocrine system . .	R/U	C	PO3, PO6
CO5	Understand the disorders and diseases associated with Digestive system, Respiratory system,	R/U	C	PO3, PO6
CO6	Understand the disorders and diseases associated with Urinary system, Reproductive system & Endocrine system	R/U	C	PO3, PO6



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Name of Course: Human Anatomy and Physiology II

Academic year: 2023-24

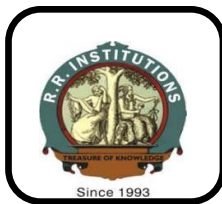
Program: B. Pharm II Sem

Faculty in Charge: Ms. Ushashree

Section: Practicals

At the end of the course the student will be able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Understand anatomical structure of Osseous system and Histology of Tissues.	R/AP/U	C	PO1, PO6
CO2	Examine RBC count.	R/AP	C	PO1, PO3, PO6
CO3	Examine WBC count, Respiratory volumes & Blood groups.	R/AP	C	PO1, PO3, PO6
CO4	Determination of Hemoglobin count, Bleeding time and Clotting time.	R/AP	P	PO1, PO3, PO6
CO5	Understand the concepts of Family planning devices.	R/AP	P	PO3, PO6
CO6	Evaluate Organ systems like digestive system Urinary system, Cardiovascular system.	An	MC	PO1, PO6



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Course out Comes and Programme outcomes

Name of Course: Pharmaceutical Organic chemistry I

Academic year: 2023-24

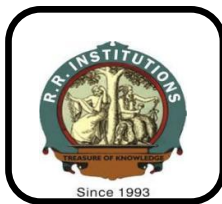
Program: B. Pharm II Sem

Faculty in Charge: Dr. Vachala S D

Section: Theory

At the end of the course the student will be able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E /C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Categorize isomerism and nomenclature of organic compounds.	R,U	C	PO1/PO3
CO2	Determine the reaction and orientation of alkanes, alkenes and conjugated dienes.	R,U	C	PO1/PO3
CO3	Explain kinetics, structure and applications of alkyl halide.	R,U	C	PO1
CO4	Describe structure and applications of alcohols.	AN	C	PO1/PO3
CO5	Understand the mechanism of carbonyl compounds.	AP	C	PO1/PO3
CO6	Explain the acidity and basicity, structure and qualitative test for carboxylic acid aliphatic amines.	AP/AN/E	P/C	PO1/PO3



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Name of Course: Pharmaceutical Organic chemistry I

Academic year: 2023-24

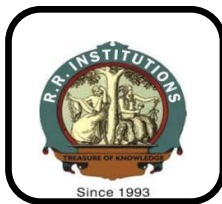
Program: B. Pharm II Sem

Faculty in Charge: Mr. Yaseen

Section: Practicals

At the end of the course the student will be able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E /C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Perform Qualitative analysis of organic compound	AN	P	PO1,PO2
CO2	Perform Qualitative analysis of organic compound	AN	P	PO1,PO2
CO3	Perform Functional group test	U	P	PO1,PO2
CO4	Determine melting point and boiling point of organic compound	U	P	PO1,PO2
CO5	Prepare suitable solid derivatives from organic compound	C	MC	PO1,PO2
CO6	Demonstrate the construction of molecular models	C	MC	PO1,PO2



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Course out Comes and Programme outcomes

Name of Course: Biochemistry

Academic year: 2023-24

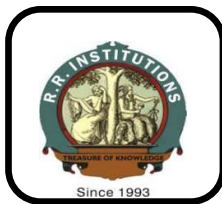
Program: B. Pharm II Sem

Faculty in Charge: Mrs. Poornima A N

Section: Theory

At the end of the course the student will be able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO1
CO1	Explain the classification of Enzymes and their kinetics, inhibition, regulation and applications.	U	C	PO1
CO2	Explain the biological oxidation process, Bioenergetics and classification, chemical nature, biological role of Carbohydrates, lipids, Nucleic acid, amino acid and Proteins.	U	C	PO1
CO3	Describe the metabolism of Carbohydrates in physiological and pathological conditions.	U	C	PO1, PO3
CO4	Describe the metabolism of lipids in physiological and pathological conditions.	U	C	PO1, PO3
CO5	Describe the metabolism of proteins, amino acids in physiological and pathological conditions.	U	C	PO1, PO3
CO6	Describe the genetic organization of mammalian genome and functions of DNA in the synthesis of RNA's and proteins.	U	C	PO1, PO3



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Biochemistry

Academic year: 2023-24

Program: B. Pharm II Sem

Faculty in Charge: Mr. Prabanjan B H

Section: practical

At the end of the course the student will be able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/ E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Analyse the carbohydrates - Glucose, Fructose, Lactose, Maltose, Sucrose, starch - Qualitatively	U,An, Ap	P	PO1
CO2	Analyse the Proteins- Albumin, casein: Abnormal constituents of Urine - Qualitatively	U,An, Ap	P	PO1
CO3	Analyse the Reducing sugars by DNSA method : proteins by biuret method- Quantitatively	U,An, Ap	P	PO1, PO4
CO4	Determine the blood Creatinine, Blood sugar, Serum total cholesterol	U,An, Ap	P	PO1, PO4
CO5	Prepare the buffer solution and measure the pH; Perform the enzymatic hydrolysis of starch	U,An, Ap	P	PO1, PO4
CO6	Determine of Salivary amylase activity, understand the effect of Temperature & substrate concentration on Salivary amylase activity.	U,An, Ap	P	PO1, PO4



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Course out Comes and Programme outcomes

Name of Course: Pathophysiology

Academic year:2023-24

Program:B. Pharm II Sem

Faculty in Charge: Mrs.Lavanya

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E /C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Understand the basic principles of cell injury ,cellular adaptations& inflammation	U	C	PO1, PO6
CO2	Understand the pathophysiology of diseases of cardio vascular, respiratory& renal system	U	F/C	PO1, PO6
CO3	Explain and understand haematological disorders	U	C	PO1, PO6
CO4	Understand the pathophysiology of endocrine, nervous& gastro intestinal system disease	U	F/C	PO1, PO6
CO5	Explain the pathophysiology of disease of bones & joints	R	F/C	PO1, PO6
CO6	Understand the principle of cancer	U	C	PO1, PO6



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Computer Application

Academic year: 2023-24

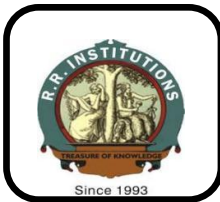
Program:B. Pharm II Sem

Faculty in Charge: Mr Tony Antony

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3.... PO11
CO1	Understand the Binary, Decimal, Octal, Hexadecimal number system and conversion of the same and addition, subtraction, multiplication and binary division, information system and software.	U & Ap	C & P	PO2, PO4
CO2	Explain the web technology like HTML, XML, CSS and programming language, Web servers. Explain various types of databases of pharmacy drug.	U & Ap	C & P	PO2, PO4
CO3	Explain the various types of applications of computers in pharmacy Understand diagnostic system, lab-diagnostic, patient monitoring and pharma information system.	U & Ap	C & P	PO2, PO4
CO4	Understand the concept and objectives of Bioinformatics, impact of bioinformatics in vaccine discovery.	U & Ap	C&P	PO2, PO4
CO5	Understand the concept of computer as data analysis in preclinical development.	U & Ap	C & P	PO2, PO4



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Computer Application

Academic year: 2023-24

Program:B. Pharm II Sem

Faculty in Charge: Mr Tony Antony

Section: Practical

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/ E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Ability to apply the knowledge of computer application for design questionnaires comparative analysis of results in pharmaceutical and clinical studies.	R	C	PO1, PO3
CO2	To apply the computer programme concepts in Pharmacy to retrieve the information, Create a data base.	U	C,P	PO1, PO4. PO11
CO3	Apply the knowledge of MS word, Excel, XML pages, web pages, HTML and Access for pharmaceutical and clinical studies.	U	C,P	PO1, PO4. PO11
CO4	To develop programmes, label wizard, generating labels, invoice table.	U	C,P	PO1, PO4



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Environmental Science

Academic year: 2023-24

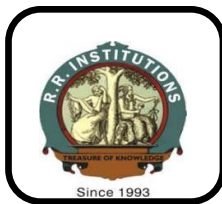
Program: B. Pharm II Sem

Faculty in Charge: Ms Geetha M

Section: Theory

At the end of the course the student will be able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Understand the multidisciplinary nature of environmental studies, Natural resources, Renewable and non renewable resource.	R&U	F&C	PO1 & PO10
CO2	Understand the Natural resources and associated problem, Role of an individual in the conservation of natural resources.	R&U	F&C	PO1 & PO10
CO3	Understand the concept of Ecosystem with its structure, function, characteristic features.	R&U	F&C	PO1 & PO10
CO4	Describe the Environmental pollution-Air, water, soil pollution.	R&U	F&C	PO1 & PO10



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

B Pharm III Sem

Name of Course: Pharmaceutical Organic Chemistry II

Academic year: 2023-24

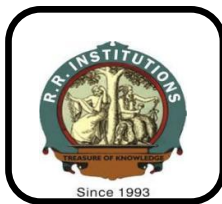
Program: B. Pharm III Sem

Faculty in Charge: Mrs.G Sujatha

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E /C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Explain the structure, name and type of Isomerism of the organic compounds	U	F	PO1, PO2
CO2	Explain the structure, name and type of allipathic organic compounds	U	F	PO1, PO2
CO3	Describe the nomenclature, synthesis and reactions of organic compounds	U	F	PO1, PO2, P03
CO4	Discuss the orientation of reactions and stability of organic compounds	C	C	PO1, PO2
CO5	Apply the principles of reaction mechanism in synthesis of organic compounds	A	C	PO1, PO2, PO3



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmaceutical Organic Chemistry II

Academic year: 2023-24

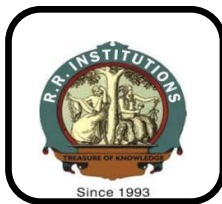
Program: B. Pharm III Sem

Faculty in Charge: Mrs.G Sujatha

Section: Practicals

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Prepare and evaluate the physiochemical properties	U	P	PO1, PO2
CO2	Demonstrate the steam distillation and Re crystallization	U	P	PO1, PO2
CO3	Determine the oil values of Acid value	U	P	PO1, PO2
CO4	Determine the oil values of Saponification value	A	C	PO1, PO2
CO5	Determine the Oil values of Iodine value	E	P	PO1, PO2
CO6	Preparation of compound	E	P	PO1, PO2



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Physical Pharmacy – I

Academic year: 2023-24

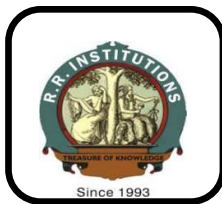
Program: B. Pharm III Sem

Faculty in Charge: Mr.Subhash P G

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Understand the quantitative approach to the factors influencing solubility of drugs.	U & AP	C and P	PO1
CO2	Explain the types of changes in the states of matter.	U	C	PO1, PO2 & PO3
CO3	Explain the surface and interfacial phenomena.	U & AP	C & P	PO1, PO2 & PO3
CO4	Explain the complexation phenomenon and protein binding concept.	U & AP	C & P	PO1, PO2 & PO3
CO5	Understand the determination of pH determination methods.	U & AP	C & P	PO1



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Physical Pharmacy – I

Academic year: 2023-24

Program: B. Pharm III Sem

Faculty in Charge: Mr.Subhash P G

Section: Practicals

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E /C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Determination of the solubility, Partition co-efficient of benzoic acid in benzene, Iodine in carbon tetrachloride and water.	U and AP	C and P	PO1, PO3 and PO4
CO2	Determination of % composition of NaCl in a solution using phenol-water system by CST method.	U and AP	C and P	PO1, PO3 and PO4
CO3	Determination of surface tension by drop count and drop weight method, HLB number of a surfactant by saponification method.	U and AP	C and P	PO1, PO3 and PO4
CO4	Determination of Freundlich and Langmuir constants	U and AP	C and P	PO1, PO3 and PO4
CO5	Determination of critical micellar concentration of surfactants.	U and AP	C and P	PO1, PO3 and PO4
CO6	Determination of stability constant and donor acceptor ratio of Cupric-Glycine complex by pH titration method.	U and AP	C and P	PO1, PO3 and PO4



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmaceutical Microbiology

Academic year: 2023-24

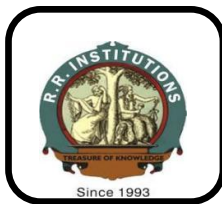
Program: B. Pharm III Sem

Faculty in Charge: - Mr. Vishal C S

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E /C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Understand the methods of identification, cultivation and preservation of microorganism	U	C & P	PO1, PO11
CO 2	Explain the staining techniques and implementation of sterilization in pharmaceutical process and industry and	R & U	C & P	PO1,PO2, PO3
CO 3	Understand virus, fungi and disinfection and evaluation	Ap &U	C	PO1,PO8, PO11
CO 4	Determine the sterility testing of pharmaceuticals	Ap & U	C & P	PO1
CO 5	Explain aseptic area and microbial standardization of pharmaceuticals	An & U	C	PO1, PO2, PO3
CO 6	Summarize cell culture technology and its applications in pharmaceuticals industry	U	C	PO1,PO11



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmaceutical Microbiology

Academic year: 2023-24

Program: B. Pharm III Sem

Faculty in Charge: Ms. Gulnar Tabasum

Section: Practicals

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E /C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Explain the apparatus used in microbiology	U	C & P	PO1,PO2, PO3
CO2	Determine staining techniques	U, Ap	C &P	PO1,PO2, PO3
CO3	Explain the sterility testing of media and glass wares used	U, An	C &P	PO1,PO2, PO3
CO4	Estimate the microbial counting	U, Ap	C &P	PO1, PO2, PO3
CO5	Detect the biochemical reactions	U, E	C & P	PO1, PO2, PO3
CO6	Explain pure culture	U	C & P	PO1, PO2, PO3



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmaceutical Engineering

Academic year: 2023-24

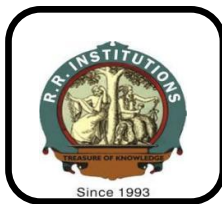
Program: B. Pharm III Sem

Faculty in Charge: Mr. Suprith

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E /C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3PO11
CO1	Explain the principle, instrumentations and Applications of flow of fluids, Size reduction, and Size separation	R&U	C&P	PO1&PO4
CO2	Explain the principles, instrumentations and Applications of Heat transfer, Evaporation, Distillation.	R&U	C&P	PO1&PO4
CO3	Explain the principle, instrumentations and Applications of drying, mixing	R&U	C&P	PO1&PO4
CO4	Explain the principle, instrumentations and Applications of filtration and centrifugal.	R&U	C&P	PO1&PO4
CO5	Understand the materials of pharmaceutical plant construction, corrosion and its prevention.	R&U	C&P	PO1&PO4



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmaceutical Engineering

Academic year: 2023-24

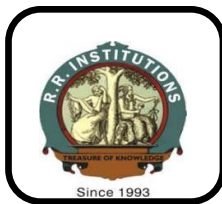
Program: B. Pharm III Sem

Faculty in Charge: Mr. Vishal C S

Section: Practicals

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO)PO1/PO2,PO3... PO11
CO1	Determine the radiation constant of brass, iron, unpainted and painted glass, Heat transfer coefficient by heat exchanger.	U &Ap	C&P	PO1, PO2 &PO3
CO2	Calculate the efficiency of steam distillation	U&AP	C&P	PO1, PO2 &PO3
CO3	Explain the moisture content,loss on drying, drying curves,size reduction using ball mill, factors affecting Rate of Filtration and Evaporation	U &Ap	C&P	PO1, PO2&PO3
CO4	Determine the humidity of air by using Dew point method, effect of crystallization rate and uniformity Index.	U &Ap	C&P	PO1, PO2&PO3
CO5	Understand the working and application rotary tablet machine, fluidized bed coater, fluid energy mill, dehumidifier,colloid mill, planetary mixer, fluidized bed dryer, freeze dryer.	U &Ap	C&P	PO1, PO2&PO3
CO6	Evaluate size distribution of tablet granulations by various size frequency curves including arithmetic and logarithmic probability plots	U&R	C&P	PO1&PO11



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

B Pharm IV Sem

Name of Course: Pharmaceutical Organic Chemistry III

Academic year: 2023-24

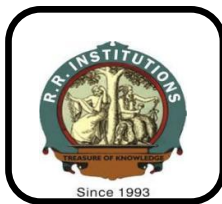
Program: B. Pharm IV Sem

Faculty in Charge: Mr.Prabanjan B H

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Explain the Stereo chemical aspects and reactions of organic compounds	U	F	PO1,PO2
CO2	Describe the nomenclature, synthesis and reactions of certain heterocyclic compounds	U	C	PO1,PO2,P03
CO3	Discuss the medicinal derivatives of certain heterocyclic compounds	C	C	PO1,PO2
CO4	Apply the principles of reaction mechanism in synthesis of organic compounds	A	MC	POC1PO2,PO3



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Medicinal Chemistry- I

Academic year: 2023-24

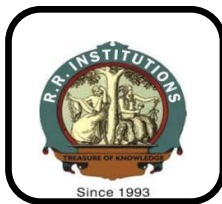
Program: B. Pharm IV Sem

Faculty in Charge: Mrs.G Sujatha

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Explain the chemistry of drugs with their pharmacological activity	U	C	PO1,PO2
CO2	Describe the drug metabolic pathways,adverse effect and therapeutic value of drugs	R	C	PO1,PO2
CO3	Discuss the structural activity relationship of different class of drugs	A	F	PO1,PO2
CO4	Write the chemical synthesis of some drugs	C	MC	PO1



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Medicinal Chemistry- I

Academic year: 2023-24

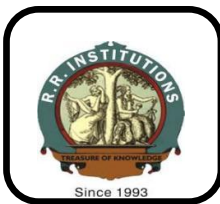
Program: B. Pharm IV Sem

Faculty in Charge: Mrs. Pushpa

Section: Practical

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E /C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Prepare and evaluate the physiochemical properties	U	P	PO1,PO2
CO2	Determine the molecular weight and purity of medicinal drugs	A	C	PO1,PO2
CO3	Evaluate the partition coefficient of drugs	E	P	PO1,PO2



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Physical Pharmacy – II

Academic year: 2023-24

Program: B. Pharm IV Sem

Faculty in Charge: Mr. Subhash P G

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E /C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Understand the colloidal dispersion systems with their properties.	U	C	PO1
CO2	Explain the types of rheological properties of systems with methods for determination of viscosity.	U and AP	C and P	PO1, PO2, and PO3
CO3	Explain the types of coarse dispersion systems with their properties, theories and stability.	U and AP	C and P	PO1, PO2, and PO3
CO4	Explain the micrometrics with particle size distribution, methods for determination of particle size and surface area and properties.	U and AP	C and P	PO1, PO2, and PO3
CO5	Understand the types of reaction kinetics and factors and overcoming methods for degradation of pharmaceutical product.	U	C	PO1



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Physical Pharmacy – II

Academic year: 2023-24

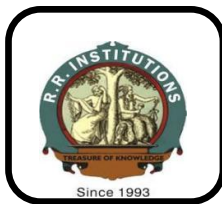
Program: B. Pharm IV Sem

Faculty in Charge: Mr.Suprith D

Section: Practical

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E /C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Determination of particle size, particle size distribution using sieving method, Microscopic method for the given samples.	U, AP	C, P	PO1, PO3 and PO4
CO2	Determination of bulk density, true density ,porosity and angle of repose for the powder samples.	U, AP	C, P	PO1, PO3 and PO4
CO3	Determination of viscosity of liquids using Ostwald's viscometer	U, AP	C, P	PO1, PO3 and PO4
CO4	Determination of sedimentation volume with effect of different concentration of single suspending agents.	U, AP	C, P	PO1, PO3 and PO4
CO5	Determination of reaction rate constant first order, Second order.	U, AP	C, P	PO1, PO3 and PO4
CO6	Determination of sedimentation volume with effect of different suspending agent	U, AP	C, P	PO1, PO3 and PO4



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmacology I

Academic year: 2023-24

Program: B. Pharm IV Sem

Faculty in Charge: Mr.K P Pavan Kalyan

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/ E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Understand the basic concepts of pharmacological history, scope & general principles.	U	C	PO1,PO7
CO2	Explain the importance of drugs & illustrate different types of drugs and their uses, routes of administration of drugs with their advantages & disadvantages	R	C	PO1,PO4
CO3	Understand the process of new drug discovery & development of drug, basics of pharmacokinetic & pharmacodynamics	R	C	PO1,PO4
CO4	Explain different types of receptors & the factors modifying drug action	U	C	PO1,PO6
CO5	Understand the various pharmacological effects of drugs on ANS.	U	C	PO1
CO6	Understand the various pharmacological effects of drugs on CNS.	R,U	C	PO1,PO7



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmacology I

Academic year: 2023-24

Program: B. Pharm IV Sem

Faculty in Charge: Mr. Dhananjaya E

Section: Practical

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Understand the concepts in the routes of administration of drugs in animals, Study the common laboratory animals	U/R	U/R	PO1,PO7
CO2	Understand the guidelines for the maintainance of laboratory animals as per CPCSEA	U/R	U/R	PO1,PO7
CO3	Observe the effect of skeletal muscle relaxant on animals by simulated experiments	U/R	U/R	PO1,PO7
CO4	Observe the effect of anticonvulsant drugs on animals by simulated experiments	U/R	U/R	PO1,PO7
CO5	Observe the effect of anxiolytic drug on animals by simulated experiments	U/R	U/R	PO1,PO7
CO6	Study of anesthetics on animals	U/R	U/R	PO1,PO7



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmacognosy & Phytochemistry -I

Academic year: 2023-24

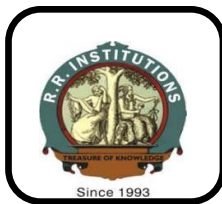
Program: B. Pharm IV Sem

Faculty in Charge: Dr. Seema Gupta

Section: Theory

At the end of the course the student will be able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An /E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Explain Pharmacognosy, Sources of crude drugs and categorize the organized and unorganized drugs	U	F	PO1,PO2,PO6
CO2	Classify the crude drugs and analyze Quality control of drugs of Natural origin	U,AN	C,P	PO1,PO2,PO3
CO3	Explain techniques in cultivation and production of crude drugs.	U,AP	C	PO1,PO2,PO3, PO4, PO11
CO4	Summarize Plant Tissue Culture applications in Pharmacognosy and types of cultures, growth and their maintenance.	U	C	PO1,PO2,PO4
CO5	Illustrate role of Pharmacognosy in AYUSH and identify the plant secondary metabolites.	U,AN	C	PO1,PO6,PO7,PO9
CO6	Explain biological source, chemical nature and uses of plant products, primary metabolites and marine drugs	U	F	PO1,PO9



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmacognosy & Phytochemistry -I

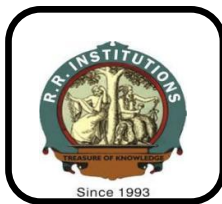
Academic year: 2023-24

Program: B. Pharm IV Sem

Faculty in Charge: Ms.Amrita dev

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E /C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3.... PO11
CO1	Analyse of crude drugs by Chemical tests	U,AN	C,P	PO1,PO2,PO6
CO2	Determine the stomatal number and index, Vein islet number, Vein termination and palisade ratio	U,AN	C,P	PO1,PO2,PO4,P O6
CO3	Perform the Quantitative microscopical study of crude drugs and determine the starch grains,Calcium oxalate crystals, fibre length and width by eyepiece micrometer	AN, R, E	C,P	PO1,PO2,PO4,P O6
CO4	Determine the number of Starch grains by Lycopodium Spore Method.	U,AN	C,P	PO1,PO2,PO4,P O6
CO5	Determine the moisture content, Extractive values and ash values of crude drugs	E,AN	P,C	PO1,PO2,PO3, PO4
CO6	Evaluate the Swelling index and Foaming index of crude drugs	U,AN	C,P	PO1,PO2,PO3, PO4



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

B Pharm V Sem

Name of Course: Medicinal Chemistry II

Academic year: 2023-24

Program: B. Pharm V Sem

Faculty in Charge: Ms. Shilpashree A T

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3.... PO11
CO1	Understand fundamental knowledge on the structure	AN/U	P	PO1, PO7,
CO2	Study of the development of the drugs, Classification, and mechanism of action.	R	P	PO1,PO9
CO3	Understand the chemistry of drugs with respect to their pharmacological activity	R,U	F/P	PO1,PO9 ,PO11
CO4	Understand the drug metabolic pathways, adverse effect and therapeutic value of drugs	R,U	F/P	PO1,PO11
CO5	Remember the Structural Activity Relationship of different class of drug	R,U	F/P	PO1,PO11
CO6	Remember the chemical synthesis of selected drugs	R,U	F/P	PO1,PO11



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Industrial Pharmacy -I

Academic year: 2023-24

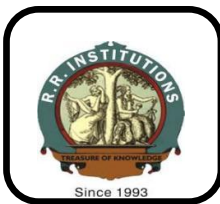
Program: B. Pharm V Sem

Faculty in Charge: Mr. Mahalingan K

Section: Theory

At the end of the course the student will able to

Co. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3... .PO11
CO1	Understand the physicochemical characteristics of drug substances & Application of pre-formulation considerations in the development of solid, liquid oral and parenteral dosage forms	U	C	PO1, PO11
CO2	Explain the processing of tablets, tablet coating & Quality control test with equipment.	U	C,P	PO1, PO4,PO11
CO3	Explain the production of hard gelatin capsule, Soft gelatin capsules & QC test & Pellets	U	C,P	PO1, PO4,PO11
CO4	Explain the formulation, production & QC test of parenteral	U	C,P	PO1, PO4,PO11
CO5	Explain the formulation and manufacturing considerations, filling, packaging methods of liquid orals & the Formulation of emulsions, suspensions and Ophthalmic formulations	U	C,P	PO1, PO4,PO11
CO6	Explain the formulation and preparation of Aerosols, Cosmetics and packaging materials	U	C,P	PO1, PO4, PO11



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Industrial Pharmacy -I

Academic year: 2023-24

Program: B. Pharm V Sem

Faculty in Charge: Mr. Mahalingan K

Section: Practical

At the end of the course the student will able to

CO No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3... .PO11
CO1	Prepare & evaluate and pre-formulation studies of Paracetamol tablets and Aspirin tablets.	Ap, E	C,P	PO2,PO3,PO4, PO11
CO2	Prepare ampoules of Ascorbic acid Injection, calcium gluconate Injection,	Ap, E	C,P	PO2,PO3,PO4, PO11
CO3	Evaluate the quality control tests for tablets, Capsules	Ap, E	C,P	PO2,PO3,PO4, PO11
CO4	Prepare and evaluation of Tetracycline capsules	Ap, E	C,P	PO2,PO3,PO4, PO11
CO5	Prepare eye drops /eye ointment, cold cream , vanishing cream	Ap, E	C,P	PO2,PO3,PO4, PO11
CO6	Evaluate Glass containers (as per IP) and Demonstrate coating of tablets/granules	U, Ap, C	F,C,P	PO2,PO3,PO4, PO11



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmacology II

Academic year: 2023-24

Program: B. Pharm V Sem

Faculty in Charge: Ms. Ushashree

Section: Theory

At the end of the course the student will able to

CO	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2, PO3....PO11
CO1	Apply the current knowledge of Cardiovascular system	R/AP	F/C	PO1, PO6 & PO9
CO2	Assess involvement of drugs used for the treatment of urinary system.	U	C	PO3
CO3	Elucidate the approaches to the autacoids and related drugs	R/AP	F/C	PO1, PO6 & PO9
CO4	Explain the pharmacotherapy of Endocrine system.	R/AP	F/C	PO3, PO6, PO11.
CO5	Elaborate the concepts and types of bioassay.	R/AP	F/C	PO3, PO6, PO11.



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmacology II

Academic year: 2023-24

Program: B. Pharm V Sem

Faculty in Charge: Mr.Harish N

Section: Practical

At the end of the course the student will able to

CO	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E /C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2, PO3....PO11
CO1	Understand the in-vitro pharmacology and physiological salt solution, drugs on isolated frog heart with the activity.	R/AP	F/C	PO1, PO6 & PO9
CO2	Asses involvement of diuretic activity, DRC of acetylcholine activity.	U	C	PO3
CO3	Understand the Bioassay of oxytocin, serotonin by using three point bioassay and four point bioassay.	R/AP	F/C	PO1, PO6 & PO9
CO4	Understand the determination of PA2 value and PD2 value , spasmogens and analgesic activity of drugs by using rats.	R/AP	F/C	PO3, PO6, PO11.



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmacognosy & Phytochemistry II

Academic year: 2023-24

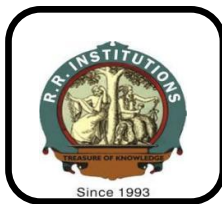
Program: B. Pharm V Sem

Faculty in Charge: Dr. Seema Gupta

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/APO/An/E/C	Knowledge Categories (KC) F/C/PO/MC	Programme outcomes (PO) PO1/PO2,PO3...PO11
CO1	Illustrate the Basic Metabolic Pathways in Higher Plants and their determination	U,R,APO,AN	C,F,PO	PO1,PO3,PO4,PO6, PO11
CO2	Summarize the modern extraction techniques, Characterization and identification of the herbal drugs and Phytoconstituents	U,R,AN,APO,C	C, F, PO	PO1,PO2,PO3,PO4, PO5,PO6
CO3	Exemplify the Preparation and development of Herbal formulation	U,R,AN,APO,C	C, F, PO	PO1,PO3,PO4, PO5,PO6,PO11
CO4	Detect the Herbal drug interactions	E,U,R,AN,APO	C, F, PO	PO1,PO2,PO3,PO4, PO6,PO11
CO5	Perform isolation and identification of Phytoconstituents	R,U,APO,AN,C	C, F, PO	PO1,PO2,PO3,PO4, PO6,PO11



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmacognosy & Phytochemistry II

Academic year: 2023-24

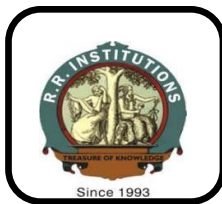
Program: B. Pharm V Sem

Faculty in Charge: Dr. Seema Gupta

Section: Practical

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3...PO11
CO1	Identify crude drugs by Morphology & Microscopical characters	U,R,AP,AN	C,F,P	PO1,PO3,PO4,PO6,PO11
CO2	Execute the isolation and Detection of active principles of phytoconstituents	U,R,AN,AP,C	C,F,P	PO1,PO2,PO3,PO4, ,P O6,PO11
CO3	Detect the crude drugs by Chemical Test	U,R,AN,AP,C	C,F,P	PO1,PO2,PO3, ,PO5,P O6,PO11
CO4	Illustrate the chromatographic techniques	E,U,R,AN,AP,C	C,F,P	PO1,PO2,PO3,PO4,PO 5,PO6,
CO5	Describe the Distillation of Volatile Oils and Detection of phytoconstituents by TLC	R,U,AP,AN,C	C,F,P	PO1,PO2,PO3,PO4, ,P O6,PO11



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Jurisprudence

Academic year: 2023-24

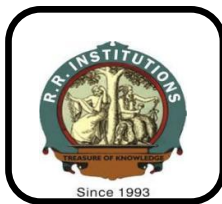
Program: B. Pharm V Sem

Faculty in Charge: Mr. Kambagiri Swamy

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Understand the various concepts of the pharmaceutical legislations in india.	U/R	F	PO1,PO7
CO2	Known the various parameters in the drug and cosmetic act and its rules.	U/R	F/P	PO1,PO7
CO3	Know the Drug policy, DPCO, Patent and design act	U/R	F/P	PO1,PO7
CO4	Understand the concept of Dangerous Drugs act, Pharmacy act, Excise duties act	U/R	F/P	PO1,PO7



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

B Pharm VI Sem

Name of Course: Medicinal Chemistry-III

Academic year: 2023-24

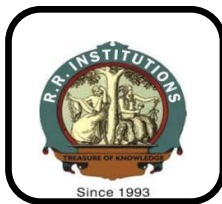
Program: B. Pharm VI Sem

Faculty in Charge: Mr. Nagaraj. N. Durgadasheemi

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An /E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3PO11
CO1	Explain Antibiotics, Aminoglycosides.	U	C	PO1 &PO3
CO2	Explain Macrolide, Prodrugs, Antimalarials.	U	C &P	PO1 &PO3
CO3	Explain Anti-tubercular Agents , Anti tubercular antibiotics, Urinary tract anti-infective agents, Antiviral agents.	U	C&P	PO1 &PO3
CO4	Explain Antifungal agents, Antifungal antibiotics, Anti-protozoal Agents, Anthelmintics, Sulphonamides, Folate reductase inhibitors.	U	C&P	PO1 &PO3
CO5	Explain Drug Design Various approaches used in drug design, Physicochemical parameters QSAR, Pharmacophore modeling and docking techniques.	U	C&P	PO1 &PO3
CO6	Combinatorial Chemistry: Concept and applications chemistry: solid phase and solution phase synthesis.	U	C&P	PO1 &PO3



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Course out Comes and Programme outcomes

Name of Course: Medicinal Chemistry-III

Academic year: 2023-24

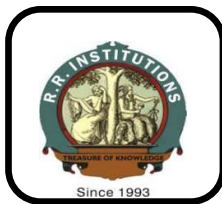
Program: B. Pharm VI Sem

Faculty in Charge: Ms. Shilpashree A T

Section: Practical

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/ E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO 11
CO1	Perform the synthesis of Sulphanilamide, 7-Hydroxy, 4-methyl coumarin, Chlorobutanol, Triphenyl imidazole, Tolbutamide, Hexamine.	U	C &P	PO1 &PO3
CO2	Estimate the Isonicotinic acid hydrazide, Chloroquine, Metronidazole, Dapsone, Chlorpheniraminemaleate, Benzyl penicillin	U	C &P	PO1 &PO3
CO3	Preparation of medicinally important compounds or intermediates by Microwave irradiation technique.	U	C&P	PO1 &PO3
CO4	Drawing structures and reactions using chem draw®	U	C &P	PO1 &PO3
CO5	Determination of physicochemical properties such as logP, clogP, MR, Molecular weight, Hydrogen bond donors and acceptors for class of drugs course content using drug design software Drug likeliness screening (Lipinskies RO5)	U	C &P	PO1 &PO3



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmacology -III

Academic year: 2023-24

Program: B. Pharm VI Sem

Faculty in Charge: Mr.Harish N

Section: Theory

At the end of the course the student will able to

Sl.No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/ E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2, PO3....PO11
CO1	Apply the current knowledge of pharmacological and toxicological aspects of various disorders.	R/AP	F/C	PO1, PO6 & PO9
CO2	Assess involvement of autacoids along with therapeutics of inflammatory processes.	U	C	PO3
CO3	Elucidate the approaches to the treatment of respiratory disorders.	R/AP	F/C	PO1, PO6 & PO9
CO4	Explain the pharmacotherapy of gastrointestinal and CNS ailments.	R/AP	F/C	PO3, PO6, PO11.
CO5	Elaborate the concepts and general management of toxicity.	R/AP	F/C	PO3, PO6, PO11.



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmacology -III

Academic year: 2023-24

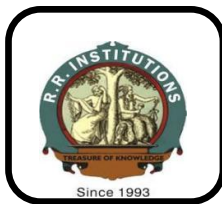
Program: B. Pharm VI Sem

Faculty in Charge: Ms.Ushashree

Section: Practical

At the end of the course the student will able to

CO	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/ E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2, PO3....PO11
CO1	Understand the dose calculation of different experimentation	R/AP	F/C	PO1, PO6 & PO9
CO2	Clarify test for pyrogen	U	C	PO3
CO3	Understand the effect of drugs on motility	R/AP	F/C	PO1, PO6 & PO9
CO4	Understand biochemical parameters	R/AP	F/C	PO3, PO6, PO11.



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Herbal Drug Technology

Academic year: 2023-24

Program: B. Pharm VI Sem

Faculty in Charge: Ms. Vishwamyna

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3...PO11
CO1	Describe the herb as a source of medicine along with the cultivation of the herbal drugs & other Indian system of medicine with their preparation and standardization of Ayurvedic formulation.	U,R,AP,AN	F,P	PO1,PO2,PO3, PO5,PO6,PO8, PO11
CO2	Explain importance of Nutraceuticals in the health care system, their possible side effects and interactions with drugs and food.	U,R,AN,AP	C,F,P	PO1,PO2,PO3,PO4,P O9, PO10,PO11
CO3	Explain the various herbal cosmetics, excipients and conventional herbal formulations.	U,R,AP,C	C,F	PO1,PO2,PO3,PO6,P O7, PO8, PO10, PO11
CO4	Explain the patenting and other regulatory bodies for the evaluation, assessment of herbal and ASU drugs.	U,R,AN,AP	C,F,P	PO1,PO2,PO3,PO4, PO10,PO11
CO5	Describe the importance and scope of Herbal Drug Industry & GMP (Schedule T).	R,U,AP,AN,C	C,F,P	PO1, PO3,PO4, PO6,PO7, PO10,PO11



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Herbal Drug Technology

Academic year: 2023-24

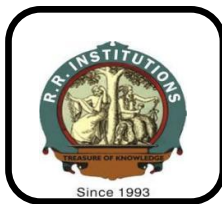
Program: B. Pharm VI Sem

Faculty in Charge: Ms. Vishwamyna

Section: Practical

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/ E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3...PO11
CO1	Assessment of the phyto constituents of crude drug.	U,R,AP,AN	F,P	PO1,PO2,PO3,PO5,PO6, PO8,PO11.
CO2	Evaluation and analysis of excipients, herbs drugs from a pharmacopoeia.	U,R,AN,AP	C,F,P	PO1,PO2,PO3,PO4,PO9, PO10,PO11.
CO3	Evaluation and formulation of various herbal cosmetics, conventional herbal dosage form.	U,R,AP,C	C,F	PO1,PO2,PO3,PO6,PO7, PO8, PO10, PO11.
CO4	Determination of phenolic, aldehyde, total alkaloid contents and alcohol content of asava and arista	U,R,AN,AP	C,F,P	PO1,PO2,PO3,PO4, PO10,PO11.



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Bio Pharm. Pharmacokinetics

Academic year: 2023-24

Program: B. Pharm VI Sem

Faculty in Charge: Mr. Anand Gupta

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/ E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3.... PO11
CO1	Understand Biopharmaceutics, Absorption of drugs from gastrointestinal tract & Distribution.	U, AP	C	PO1, PO10, PO11
CO2	Understand Drug Distribution & Elimination.	U, AP	C & P	PO1, PO10, PO11
CO3	Understand Bioavailability & bioequivalence	U, AP	C & P	PO1, PO10, PO11
CO4	Apply Pharmacokinetics : One compartment open model a. Intravenous Injection (Bolus) b. Intravenous infusion.	U, AP	C & P	PO1, PO10, PO11
CO5	Apply & calculate Multicompartment models. Two compartment open model. IV bolus, kinetics of multiple dosing, steady state drug levels, loading & maintenance doses	U, AP	C & P	PO1, PO10, PO11
CO6	Explain Nonlinear Pharmacokinetics, Michaelis-menten equation.	U, AP	C & P	PO1, PO10, PO11



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmaceutical Biotechnology

Academic year: 2023-24

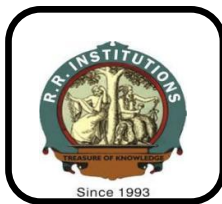
Program: B. Pharm VI Sem

Faculty in Charge: Mrs. Manjula KS

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E /C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Understand the different methods of enzyme immobilization	U	C	PO1,PO6 PO7
CO2	Understand the cloning vectors and r DNA technology	R, U	C	PO1,PO6 PO7
CO3	Understand the immunity and structure of immunoglobulin	Ap, U	P	PO1,PO6
CO4	Determine the immune blotting techniques	An, U	C, P	PO1 PO7
CO5	Explain the fermentation methods using microorganisms and Summarize storage condition of blood products and vaccines	U	C	PO1,PO6



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Quality Assurance

Academic year: 2023-24

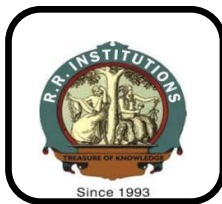
Program: B. Pharm VI Sem

Faculty in Charge: Mr. Suprith

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Quality Assurance and Quality Management concepts, ICH Guidelines: Quality by design (QbD), ISO 9000 & ISO14000, NABL accreditation	U, AP	C	PO1, PO10, PO11
CO2	Organization and personnel, Premises, Equipments and raw materials	U, AP	C & P	PO1, PO10, PO11
CO3	Quality Control, Good Laboratory Practices	U, AP	C&P	PO1, PO10, PO11
CO4	Complaints, Document maintenance in pharmaceutical industry	U, AP	C&P	PO1, PO10, PO11
CO5	Calibration and Validation, Warehousing	U, AP	C&P	PO1, PO10, PO11



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

B Pharm VII Sem

Name of Course: Instrumental Methods of Analysis

Academic year: 2023-24

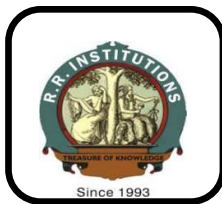
Program: B. Pharm VII Sem

Faculty in Charge: Dr. Vachala S D

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO 11
CO1	Explain the theoretical principles of UV and Fluorimetry.	U	C	PO1, PO4, PO11
CO2	Learn basic principles and instrumentation of IR spectroscopy, flame photometry, Atomic absorption spectroscopy, Nepheloturbidometry.	U	C	PO1, PO4, PO11
CO3	Learn basic principles involved in TLC, column chromatography, paper chromatography and electrophoresis.	U	C	PO1, PO4, PO11
CO4	Explain theory and instrumentation of GC, HPLC.	U	C	PO1, PO4, PO11
CO5	Explain theory and instrumentation gel chromatography, ion exchange chromatography and affinity chromatography.	U	C	PO1, PO4, PO11



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Instrumental Methods of Analysis

Academic year: 2023-24

Program: B. Pharm VII Sem

Faculty in Charge: - Mrs. Pushpa D Poojari

Section: Practical

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Learn absorption maxima and effect of solvents on absorption of various organic compounds.	U,An,Ap	P	PO1 , PO4, PO11,
CO2	Learn separation and identification of compounds by various chromatographic techniques.	U,An,Ap	P	PO1 , PO4, PO11,
CO3	Analyse the compounds by UV-Visible spectrophotometry.	U,An,Ap	P	PO1 , PO4, PO11,
CO4	Analyse the compounds by fluorimetry.	U,An,Ap	P	PO1 , PO4, PO11,
CO5	Analyse the inorganic ions by flame photometry and Nepheloturbidometry.	U,An,Ap	P	PO1 , PO4, PO11,
CO6	Understand the separation of compounds by GC & HPLC methods.	U,An,Ap	P	PO1 , PO4, PO11,



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Industrial Pharmacy-II

Academic year: 2023-24

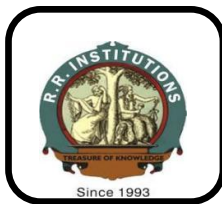
Program: B. Pharm VII Sem

Faculty in Charge: Ms.Manjula KS

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes(PO) PO1 /PO2,PO3....PO11
CO1	Understand the Pilot plant scale up techniques and considerations for solids, liquid orals, semi solids and relevant documentation, SUPAC guidelines, platform technology.	R , U	F, C	PO1,PO11
CO2	Explain the technology development, transfer, WHO guidelines for Technology Transfer, Commercialization, TT agencies in India its confidentiality agreement, licensing, MoUs, legal issues.	R, U	F, C	PO1, PO11
CO3	Explain the Regulatory affairs and Regulatory requirements for drug approval	R, U, and A	C, P	PO1, PO2, and PO11
CO4	Explain the Quality management systems & Certifications, Quality by Design , Six Sigma concept, Out of Specifications, Change control, Introduction to ISO 9000 series of quality systems standards.	R, U	F, C	PO1, PO11
CO5	Understand the Indian Regulatory Requirements for CDSCO and State Licensing Authority	R, U, and A	F, C	PO1, PO11



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmacy Practice

Academic year: 2023-24

Program: B. Pharm VII Sem

Faculty in Charge: Dr. Shyam Nandan Yadav

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/ E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....P O11
CO1	Demonstrate knowledge and ability to use principles of therapeutics, quality improvement, communication, economics, health behavior, social and administrative aspects, health policy and legal issues in the practice of pharmacy.	U/R/ AP	F/P	PO1,PO2
CO2	Knowledge of drug distribution methods in hospital and apply it in the practice of pharmacy.	U/R/AP	F/C	PO1,PO4
CO3	Effectively apply principles of drug store management and inventory control to medication use.	U/R/AP/C	F/P	PO1,PO2, PO4
CO4	Provide patient-centered care to diverse patients using the best available evidence and monitor drug therapy of patient	U/R	F/C/P	PO1,PO6, PO8
CO5	Students will engage in innovative activities by making use of the knowledge of clinical trials	U/R/AP	F/P	PO1,PO4
CO6	Exhibit professional ethics by producing safe and appropriate medication use throughout society.	U/R	F/C	PO1, PO7



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Novel Drug Delivery System

Program: B. Pharm VII Sem

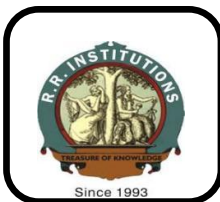
Section: Theory

At the end of the course the student will able to

Academic year: 2023-24

Faculty in Charge: Mr. Suprith D

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Understand the various approaches for development of novel drug delivery systems.	R and U	C	PO1 and PO11
CO2	Understand the various methods for development of microspheres.	R and U	C	PO1 and PO11
CO3	Explain the gastro retentive drug delivery systems.	U, A and E	C and P	PO1, PO2, PO4 and PO11
CO4	Understand ocular drug delivery systems and vaccine delivery systems.	R and U	C	PO1 and PO11
CO5	Explain the transdermal drug delivery systems.	U, A and E	C and P	PO1, PO2, PO4 and PO11
CO6	Explain the concepts and approaches for targeted drug delivery.	U, A and E	C and P	PO1, PO2, PO4 and PO11



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

B Pharm VIII Sem

Name of Course: Biostatistics and Research Methodology

Academic year: 2023-24

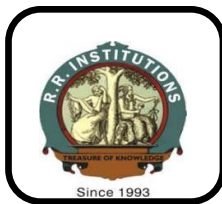
Program: B. Pharm VIII Sem

Faculty in Charge: Ms.Monica Dey

Section: Theory

At the end of the course the student will able to

Co. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Understand Statistics, Biostatistics, Frequency distribution Measures of central tendency, Measures of dispersion and Correlation	R, U A and E	C,P	PO1, PO4,PO11
CO2	Understand Regression, Probability and Parametric test	R, U A and E	C,P	PO1, PO2, PO3 , PO4 and PO11
CO3	Explain Non Parametric tests	R, U A and E	C,P	PO1, PO2, PO3 , PO4 and PO11
CO4	Know the need for design of Experiments, Experiential Design Technique, plagiarism, Graphs and Designing the methodology for formulation.	R, U A and E	C,P	PO1, PO2, PO3 , PO4 and PO11
CO5	Know the Blocking and confounding system for Two-level factorials, Regression modeling, Statistical Analysis Using Excel, SPSS, MINITAB®, DESIGN OF EXPERIMENTS, R-Online Statistical Software's to Industrial and Clinical trial approach	R, U A and E	C,P	PO1, PO2, PO3 , PO4 and PO11
CO6	Design and Analysis experiments by using design of experiment software	R, U A and E	C,P	PO1, PO2, PO3 , PO4 and PO11



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Social and Preventive Pharmacy

Academic year: 2023-24

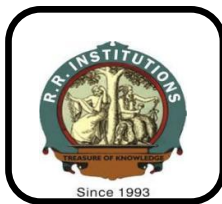
Program: B. Pharm VIII Sem

Faculty in Charge: Dr. Shyam Nandan Yadav

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Recognize the concepts and evaluation of public health	U/R	F/P	PO1,PO3
CO2	Illustrate socio-cultural factors and its relation with health	U/R/AP	F/C	PO1,PO11
CO3	Identify avoidable habits for personal hygiene and health	U/R/An	F/P	PO3,PO11
CO4	Explain the principles on the prevention and control of communicable and non-communicable diseases	U/R	F/C/P	PO1,PO11
CO5	Identify National health programs its objectives functioning and outcomes	U/R	F/P	PO1,PO4
CO6	Recognize the community services in rural, urban and school health	U/R/Ap	F/C	PO1, PO6, PO8



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmaceutical Regulatory Science

Academic year: 2023-24

Program: B. Pharm VIII Sem

Faculty in Charge: Mr. Vijay Kumar J Section:

Theory

At the end of the course the student will able to

Sl. No	Course Outcome(CO)	Cognitive level (CL) R/U/AP/An/E /C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Understand the concepts of innovator and generic drugs, drug development process.	R and U	F and C	PO1 and PO11
CO2	Understand the regulatory guidelines and guidelines for filling and approval process.	R and U	F and C	PO1 and PO11
CO3	Apply preparation of dossiers and their submission to regulatory agencies in different countries.	R, U, and A	C and P	PO1, PO2, and PO11
CO4	Understand the post-approval regulatory requirements for actives and drug products.	R and U	F and C	PO1 and PO11
CO5	Explain the submission of global documents in CTD/eCTD formats.	R, U, and A	F and C	PO1 and PO11
CO6	Explain the clinical trial requirements for approval for conducting clinical trials.	R, U, and A	C and P	PO1 and PO11
CO7	Explain the pharmacovigilance and process of monitoring in clinical trials.	R, U, and A	C and P	PO1 and PO11



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Cosmetic Science

Academic year: 2023-24

Program: B. Pharm VIII Sem

Faculty in Charge: Mr. Anand Gupta

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Understand & classify cosmetic & cosmetical products,cosmetic excipients,structure & function of skin.hair&oral cavity.	U	C	PO1, PO10, PO11
CO2	Understand & explain formulation & building blocks of skin care,hair care & oral care products.	U, AP	C &P	PO1, PO10, PO11
CO3	Understand & analyze role of herbs in cosmetics. skin care,hair care & oral care products.	U, AP	C&P	PO1, PO10, PO11
CO4	Understand & apply sebumeter,corneometer,TEWL,Skin color, hair tensile strength,hair combing properties,syndet bars &soaps.	U, AP	C&P	PO1, PO10, PO11
CO5	Understand & apply oily & dry skin,skin moisterisation,comedogenic & dermatitis cosmetic problem associated with hair & scalp,skin, antiperspirants & deodorants.	U, AP	C&P	PO1, PO10, PO11



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Pharm D I Year

Name of Course: Pharmaceutics

Academic year: 2023-24

Program: Pharm D I Year

Faculty in Charge: Mr. Kambagiri Swamy

section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3.... PO11
CO1	Understand the history of profession of pharmacy as career, education, industries, types of pharmacopoeia, the basics of different dosage forms.	R & U	F	PO1,PO4
CO2	Explain the Parts, handling the prescriptions their parts.Factors affecting posology, calculate the dosage based on age, body weight and surface area.	U & Ap	F & C	PO1,PO4
CO3	Calculate and analyze pharmaceutical calculation involving percentage solution, alligation, proof spirit and isotonic solution based on freezing point & molecular weight,	U & Ap	C & P	PO1,PO4
CO4	Define and classify powders and their preparations.	R & Ap	C&P	PO1,PO4
CO5	Explain liquid dosage form, classify pharmaceutical incompatibility with example.	U & Ap	C & P	PO1,PO4
CO6	Define & classify monophasic and biphasic liquid dosage forms,suppositories, types, method of preparation, evaluation parameter, stability problems	U & Ap	C & P	PO1,PO4



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmaceutics

Academic year: 2023-24

Program: Pharm D I Year

Faculty in Charge: Mr. Kambagiri Swamy

Section: Practical

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Prepare Syrups and Elixirs.	Ap	p	PO1,PO4
CO2	Prepare Linctus and Solutions.	Ap	P	PO1,PO4
CO3	Prepare Suspensions and Emulsions.	Ap	p	PO1,PO4
CO4	Prepare Powders and Granules.	Ap	p	PO1,PO4
CO5	Prepare Suppositories.	Ap	p	PO1,PO4
CO6	Prepare Semisolids.	Ap	p	PO1,PO4



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Medicinal Biochemistry

Academic year: 2023-24

Program: Pharm D I Year

Faculty in Charge: Mrs. Pushpa D Poojari

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3.... PO11
CO1	Explain the cell , transport Process , Energy rich compounds, classification of Enzymes and their kinetics, inhibition, regulation and applications.	U	C	PO1
CO2	Explain the biological oxidation process, Bioenergetics, classification, chemical nature, biological role of Carbohydrates, lipids, Nucleic acid, amino acid and Proteins.	U	C	PO1
CO3	Describe the metabolism of Carbohydrates in physiological and pathological conditions.	U	C	PO1, PO3
CO4	Describe the metabolism of lipids in physiological and pathological conditions.	U	C	PO1, PO3
CO5	Describe the metabolism of proteins, amino acids in physiological and pathological conditions.	U	C	PO1, PO3
CO6	Describe the genetic organization of mammalian genome and functions of DNA in the synthesis of RNA's and proteins and Describe the biochemical principles of organ function tests of kidney, liver,Endocrine gland and determination of bio molecules in the body fluids.	U	C	PO1, PO3



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Medicinal Biochemistry

Academic year: 2023-24

Program: Pharm D I Year

Faculty in Charge: Mrs. Pushpa D Poojari

Section: Practical

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3.... PO11
CO1	Analyse the Normal and Abnormal constituents of Urine - Qualitatively	U,An,Ap	P	PO1,
CO2	Determine the Urine Creatinine, sugar, chloride, calcium.	U,An,Ap	P	PO1, PO4
CO3	Determine the serum cholesterol, urea, proteins, bilirubin, creatinine, SGPT, SGOT, inorganic ions.	U,An,Ap	P	PO1, PO4
CO4	Prepare the buffer solution and measure the pH; Perform the enzymatic hydrolysis of starch;	U,An,Ap	P	PO1, PO4
CO5	Determine of Salivary amylase activity, understand the effect of Temperature & substrate concentration on Salivary amylase activity.	U,An,Ap	P	PO1, PO4
CO6	Perform lipid profile test	U,An,Ap	P	PO1, PO4



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmaceutical Organic chemistry

Academic year: 2023-24

Program: Pharm D I Year

Faculty in Charge: Mrs G Sujatha

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E /C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Explain structures & Physical Properties, Understand Nomenclature of Organic compounds.	U	C	PO1
CO2	Explain Free radicals and Bayer's strain theory	U	C	PO1
CO3	Understand Nucleophilic substitution reactions and Dehydrohalogenation reaction	U	C	PO1
CO4	Understand electrophilic addition reaction	U	C	PO1
CO5	Understand Nucleophilic addition reactions.	U	C	PO1
CO6	Understand Medicinal compounds & their uses	U	C	PO1



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmaceutical Organic chemistry

Academic year: 2023-24

Program: Pharm D I Year

Faculty in Charge: Mrs G Sujatha

Section: Practical

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E /C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Understand preparation of different organic compounds.	U, AP, An,E	C, P	PO1, PO2, PO3
CO2	Identification of organic compounds by systematic qualitative analysis	U, AP, An,E	C, P	PO1, PO2, PO3
CO3	Identification of Nitro benzene (nitro compound) by systematic qualitative analysis	U, AP, An,E	C, P	PO1, PO2, PO3
CO4	Identification of Chloro benzene (Hydrocarbon compound) by systematic qualitative analysis	U, AP, An,E	C, P	PO1, PO2, PO3
CO5	Identification of (ketone compound) by systematic qualitative analysis	U, AP, An,E	C, P	PO1, PO2, PO3
CO6	Identification of Benzaldehyde (Aldehyde compound) by systematic qualitative analysis	U, AP, An,E	C, P	PO1, PO2, PO3



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmaceutical Inorganic chemistry

Academic year: 2023-24

Program: Pharm D I Year

Faculty in Charge: Mr. Yaseen

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3PO11
CO1	To understand different sources of impurities & to develop ideas with the fundamentals of analytical chemistry.	U	C	PO1
CO2	Explain need and basic principle and applications of different titrations.	U	C	PO1
CO3	Describe acquainted with the principles of limit test and important inorganic compounds of antidotes, respiratory stimulants & medicinal gases.	U	C	PO1, PO3
CO4	Understand the medicinal and pharmaceutical importance of inorganic compounds of acidifiers and antacids.	U	C	PO1, PO3
CO5	Describe with the difference classes of inorganic pharmaceutical compounds and their analysis.	U	C	PO1, PO3
CO6	To highlight domain of radiopharmaceuticals used in diagnostics and therapy & to describe typical therapeutic classes of inorganic compounds.	An	C	PO1, PO3



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmaceutical Inorganic chemistry

Academic year: 2023-24

Program: Pharm D I Year

Faculty in Charge: Mr. Yaseen

Section: Practical

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3.... PO11
CO1	Analyse the fundamentals of volumetric analytical skills analytical techniques in lab	U,An,Ap	P	PO1,
CO2	Determine various impurities in inorganic drugs and pharmaceuticals.	U,An,Ap	P	PO1, PO4
CO3	Identify and determine tests for the purity and preparation of some inorganic compounds	U,An,Ap	P	PO1, PO4
CO4	Analyse the knowledge about assay of pharmaceutical substances	U,An,Ap	P	PO1, PO4



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Pharm D II Year

Name of Course: Pathophysiology

Academic year: 2023-24

Program: Pharm D II Year

Faculty in Charge: Mr. Harish N

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E /C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Understand the basic principles of cell injury ,cellular adaptations& inflammation	U	F	PO1,PO6
CO2	Understand the pathophysiology of diseases of cardio vascular, respiratory& renal system	U	C	PO1,PO6
CO3	Explain and understand immunity & its disease	U	C	PO1,PO6
CO4	Understand the pathophysiology of endocrine, nervous& gastro intestinal system disease	U	F/C	PO1,PO6
CO5	Explain the pathophysiology of disease of bones & joints	R	C/F	PO1,PO6
CO6	Understand the principle of cancer Define and explore infectious disease sexually transmitted disease	U R An	C	PO1,PO6



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmaceutical Microbiology

Academic year: 2023-24

Program: Pharm D II Year

Faculty in Charge: Mrs. Srilatha KS

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E /C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Understand methods of identification,cultivation and preservation of microorganism	U	C	PO1,PO6 PO7
CO2	Understand the importance and implementation of sterilization in pharmaceutical process and industry	R U	C	PO1,PO6 PO7
CO3	Determine the sterility testing of pharmaceuticals	Ap U	P	PO1,PO6
CO4	Carry out microbial standardization of pharmaceuticals	An U	C P	PO1 PO7
CO5	List out the disease causing microorganisms by performing diagnostic tests	An U	C	PO1,PO6 PO7
CO6	Understand the behavioral characteristics of microorganism and explain antigen and antibody	U	C p	PO1, PO2 ,PO6 PO7



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmaceutical Microbiology

Academic year: 2023-24

Program: Pharm D II Year

Faculty in Charge: Mrs. Srilatha KS

Section: Practical

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E /C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	List out the apparatus used in microbiology	U	C	PO1,PO6 PO7
CO2	Carry out staining techniques	R U	C	PO1,PO6 PO7
CO3	Determine the sterility testing of media and glass wares used	An U	P	PO1,PO6
CO4	Carry out microbial counting	An U	C P	PO1 PO7
CO5	List out the biochemical reactions	An U	C	PO1,PO6 PO7
CO6	Understand pure culture	U	C	PO1,PO6 PO7



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmacognosy & Phytopharmaceuticals

Academic year: 2023-24

Program: Pharm D II Year

Faculty in Charge: Ms. Vishwamyna

Section: Theory

At the end of the course the student will able to

Sl. NO	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2, PO3.... PO11
CO1	Explain Pharmacognosy and its history, scope. Sources of crude drugs and categorize the organized and unorganized drugs	U	F	PO1, PO2, PO6
CO2	Classify the crude drugs and analyze Quality control of drugs of Natural origin	U, AN	C, P	PO1, PO2, PO3
CO3	Explain techniques in cultivation and production, storage of crude drugs.	U, AP	C	PO1, PO2, PO3, PO4, PO11
CO4	Summarize the Plant Cell Constituents and morphological, microscopical characters of crude drugs.	U	C	PO1, PO2, PO4
CO5	Explain natural pesticides & plant fibres.	U	F	PO1, PO2, PO6
CO6	Explain biological source, chemical nature and uses of plant products of primary metabolites of Carbohydrates, Proteins, Lipids.	U	F	PO1, PO9



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmacognosy & Phytopharmaceuticals

Academic year: 2023-24

Program: Pharm D II Year

Faculty in Charge: Ms. Vishwamyna

Section: Practical

At the end of the course the student will able to

SL. NO	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3.... PO11
CO1	Clarify Cell wall constituents and Cell inclusions.	U	C,P	PO1,PO2,PO6
CO2	Categorize the crude drugs by macroscopical characters powder and microscopic study	U,AN	C,P	PO1,PO2,PO4,PO6,PO11
CO3	Categorize the crude drugs by microscopical characters	U,AN	C,P	PO1,PO2,PO4,PO6,PO11
CO4	Categorize the crude drugs by powder microscopical characters	U,AN	C,P	PO1,PO2,PO4,PO6,PO11
CO5	Analyse of crude drugs by Chemical tests	U,AN	C,P	PO1,PO2,PO6
CO6	Analyse lipid drugs by acid value, saponification value, Ester value, Iodine value.	U,AN	C,P	PO1,PO2,PO4,PO6



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmacology I

Academic year: 2023-24

Program: Pharm D II Year

Faculty in Charge: - Mrs. Lavanya KR

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3.... PO11
CO1	Know basics of pharmacological history, scope & general principles and Define drug & illustrate on types of drug including their uses	R, U	F/MC	PO1, PO4 and PO7
CO2	Classify the various routes of administration with their advantages & disadvantages and Understand the process of new drug discovery & development of drug	R, U	C/F	PO1, PO4 and PO7
CO3	Understand the basics of pharmacokinetic & pharmacodynamics and Classify receptors & study the principles, site mechanism & factors modifying drug action	R, U	C/F	PO1, PO4 and PO4
CO4	Explain the mechanism of action, target receptors, adverse effects, drug interaction, contraindication & therapeutic uses of drug in ANS & CNS	R	C/F	PO1, PO3, PO4
CO5	Explain the mechanism of action, adverse effects, drug interaction, contraindication, therapeutic uses of drug in CVS	R	C	PO1, PO3, PO4
CO6	Explain the mechanism of action, target receptors, adverse effects, drug interaction, contraindication & therapeutic uses of drug in Respiratory tract, hormones, autotoxins	R	C	PO1, PO3, PO4, PO6, PO8



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmacology I

Academic year: 2023-24

Program: Pharm D II Year

Faculty in Charge: Mrs. Lavanya KR

Section: Practical

At the end of the course the student will able to

CO	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An /E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2, PO3....PO11
CO1	Apply the current knowledge of General pharmacology, Drugs acting on CNS.	R/AP	F/C	PO1, PO6 & PO9
CO2	Assess involvement of drugs used for the treatment of Cardiovascular system, Central nervous system.	U	C	PO3
CO3	Elucidate the pharmacology of drugs acting on Respiratory tract.	R/AP	F/C	PO1, PO6 & PO9
CO4	Explain the pharmacology of hormones and hormone antagonist.	R/AP	F/C	PO3, PO6, PO11.
CO5	Elaborate the concepts of autacoids and their antagonists.	R/AP	F/C	PO3, PO6, PO11.



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: community pharmacy

Academic year: 2023-24

Program: Pharm D II Year

Faculty in Charge: Dr. Peter Kandel Section:

Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E /C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Demonstrate knowledge of the business and professional practice management skills in community pharmacies	R/U/AP	F/C/P	PO1,PO5,
CO2	Understand the process of educating patients through counselling and provide health screening service to public	U/AP	C	PO1,PO2,PO5
CO3	Identify symptoms of minor ailments and provide appropriate medication	R	C/P	PO1,PO3,PO4
CO4	Exhibit professional ethics by promoting safe and appropriate medication use	AP	P	PO1,PO2,PO4,PO8
CO5	Understand importance of participating in prevention programmes of communicable diseases	U/AP	MC	PO1,PO5
CO6	Demonstrate the healthcare to various patients by counselling	AP	P	PO1,PO4,PO5



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmacothreapeutics-I

Academic year: 2023-24

Program: Pharm D II Year

Faculty in Charge: Ms.Nayana P Kunderi

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC)F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3PO11
CO1	Understand the pathophysiology of cardiovascular haematological disease states and its appropriate drug therapy.	U	C	PO1,PO3
CO2	Understand the pathophysiology of respiratory disease state and endocrine diseases its appropriate drug therapy.	U	C	PO1,PO3
CO3	Assess the therapeutic approach to management of disease and Explain the importance of preparation of individualized therapeutic plans based on diagnosis	An R	P C	PO1,PO2,PO3, PO4
CO4	Explore the diagnostic procedure for the selected disease	U	P	PO1,PO4
CO5	Know the normal laboratory values and interpret the alterations in these values.	R	F/C	PO1,PO4
CO6	Explanation of ophthalmology with disease and treatment and Discuss the side effects, ADR and ADE due to drug administration.	U/R/An	F/C	PO1,PO2, PO3, PO5,PO8



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmacothreapeutics-I

Academic year: 2023-24

Program: Pharm D II Year

Faculty in Charge: Ms.Nayana P Kunderi

Section: Practical

At the end of the course the student will able to

Sl. no	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO 11
CO1	Participate in the ward rounds along with clinical pharmacist	Ap/An	MC	PO1,PO2,PO4,PO7
CO2	Collect the cases and document them	Ap	MC	PO1,PO4,PO7,PO8
CO3	Analyze the case and report drug interactions, side effects and ADRs found	U/An	MC	PO1,PO3,PO8
CO4	Participate in patient counseling	Ap	MC	PO1,PO2,PO4,PO8
CO5	Plan to answer drug information queries	Ap,An	MC	PO1,PO2
CO6	Execute patient medication history interview	Ap	MC	PO1,PO2,PO4,PO8



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Pharm D III Year

Name of Course: Pharmacology-II

Academic year: 2023-24

Program: Pharm D III Year

Faculty in Charge: Mrs.Malampatti Sushmsa S

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/ E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Understand the anticoagulants classification.	R	P	PO1,PO7
CO2	Explaining pharmacology of the drug acting drug acting on Renal system	U/R	c	PO1,PO4
CO3	Demonstrate chemotherapy	U/R	C	PO1,PO7
CO4	Explain Immunopharmacology	U/R	C	PO1,PO7
CO5	Explaining principles of toxicology	U/R	C	PO1,PO5,PO8
CO6	Understand the structure and function of cell, genome structure & function, RNA processing	R/AP/U/R	C/P	PO1,PO3,PO1,PO7



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmacology-II

Academic year: 2023-24

Program: Pharm D III Year

Faculty in Charge: Mrs.Malampatti Sushmsa S

Section: Practical

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3PO11
CO1	To evaluate bioassay of histamine and acetyl choline using isolated chick ileum by matching dose method and interpolation method and three point bioassay method, physiological salt solution used in experimental pharmacology	R/U/AP/E	C/P	PO1,PO4,PO7
CO2	To determine principle, procedure involved and interpretation of given result for analgesic property of drug using analgesimeter	R/U/AP/E	C/P	PO1,PO4,PO7
CO3	To determine principle, procedure involved and interpretation of given result for anti depressant activity of drugs using pole climbing operater	R/U/AP/E	C/P	PO1,PO3
CO4	Study of laboratory animals and their handling	U/R/AP	C/P	PO1,PO2,PO4
CO5	To determine principle, procedure involved and interpretation of given result for muscle relaxant effect of drugs using rota rod& locomotor activity	R/U/AP/E	C/P	PO1,PO4,PO7
CO6	To determine principle, procedure involved and interpretation of given result for hypnotics and sedative property using pentobarbitone induced sleeping time method, pole climbing operater	R/U/AP/E	C/P	PO1,PO4,PO7



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmaceutical Analysis III

Academic year: 2023-24

Program: Pharm D III Year

Faculty in Charge: Mr. Yaseen

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL)R/U/AP/An/E/C	Knowledge Categories(KC) F/C/P/MC	Programme outcomes (PO) PO1,PO2,PO3,PO11
CO1	Know the Quality assurance and quality control methods quality of equipment, validation of equipment and validation of analytical instruments and calibration.	U , A	F,C	Po1 , Po4 and Po9
CO2	Understand classification, separation techniques, choice of methods For various Chromatography techniques.	U	C ,P	Po1 And PO4
CO3	Demonstrate the theory, instrumentation,applications For HPLC, HPTLC, Gas chromatography, Electrophoresis, Gel filtration and affinity chromatography	U	C,P	Po1,Po3 And PO4
CO4	know the theoretical aspects, instrumentation, interpretation of data/spectra, analytical applications for electro analytical methods of titration	E A	P	Po1 and Po4
CO5	Understand the Theoretical aspects, instrumentation, elements of interpretation of data/spectra and application for Absorption Spectroscopy	U	C F	Po1 and P04
CO6	Understand theoretical aspects , Applications NMR & ESR ,Mass Spectroscopy,Polarimetry, X-RAY Diffraction and ThermalAnalysis	U	P	Po1 and Po4



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmaceutical Analysis III

Academic year: 2023-24

Program: Pharm D III Year

Faculty in Charge: Mr. Yaseen

Section: Practical

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Separation and identification of Amino Acids by Paper Chromatography, Sulpha drugs by TLC technique.	C,U, AP	P	Po1 , Po4
CO2	Recognize the principle, instrumentation and applications of analytical instruments	C,U, AP	P	Po1 , Po4
CO3	Study of quenching effect in fluorimetry, Effect of pH and solvent on the UV spectrum of given compound,	C,U	P,C	Po1 , Po4
CO4	Estimation of drugs by Fluorimetric technique, Colourimetric estimation of Supha drugs using BMR reagent, Simultaneous estimation of two drugs present in given formulation, Assay of Salicylic Acid by colourimetry.	C,U, AP	P	Po1 , Po4
CO5	Determination of dissociation constant of indicators using UV-Visible spectroscopy, Determination of Chlorides and Sulphates in Calcium gluconate by Nepheloturbidimetric Method. Determination of Na/K by Flame Photometry. Determination of pKa using pH meter.	C,U, AP	P	Po1 , Po4
CO6	Demonstration of HPLC, HPTLC, GC MS and DSC	U, AP	P, MC	Po1,P03 and Po4



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmacotherapeutics- II

Academic year: 2023-24

Program: Pharm D III Year

Faculty in Charge: Ms.Dharini

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL)R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Understand the pathophysiology of infectious disease states and its appropriate drug therapy.	U	C	PO1, PO2,PO3
CO2	Understand the pathophysiology of musculo skeletal disease state and its appropriate drug therapy.	U	C	PO1, PO2,PO3
CO3	Understand the pathophysiology of Renal and dermatological disease state and its appropriate drug therapy Discuss the side effects, ADR and ADE due to drug administration	U An	C, F	PO1, PO2, PO3 PO6
CO4	Understand the pathophysiology of Breast cancer and leukaemia Conduct the patient counseling for the selected disease state.	U AP	M, C P	PO1, PO2,PO3
CO5	Assess the therapeutic approach to management of disease. Know the normal laboratory values and interpret the alterations in these values	An R	P F/C	PO1,PO2,PO3 PO4
CO6	Explain the importance of preparation of individualized therapeutic plans based on diagnosis and diagnostic procedure for the selected disease.	R U	C P	PO1,PO2,PO3 PO4



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmacotherapeutics- II

Academic year: 2023-24

Program: Pharm D III Year

Faculty in Charge: Mr. Pruthvi Thakur

Section: Practical

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/ C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO 11
CO1	Understand the pathophysiology of disease states and its appropriate drug therapy.	U	C	PO1, PO2,PO3
CO2	Assess the therapeutic approach to management of disease.	U	C	PO1, PO2,PO3
CO3	Conduct the patient counseling for the selected disease state	U	C	PO1, PO2,PO6
CO4	Assess the follow up progress and changes made in drug therapy in allotted patients	U	C	PO1, PO2,PO3
CO5	Conduct the case presentation of different disease states	An	P	PO1,PO2,PO3



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmaceutical. Jurisprudence

Academic year: 2023-24

Program: Pharm D III Year

Faculty in Charge: Mr. Kambagiri Swamy

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/ E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3.... PO11
CO1	Pharmaceutical Legislation – Principle and Significance of professional ethics. Critical study of the code of Pharmaceutical ethics drafted by PCI.	U, AP	C	PO1, PO2, PO4
CO2	Drugs and Cosmetics Act, 1940 and its rules 1945.	U, AP	C & P	PO1, PO2, PO4
CO3	Pharmacy Act –1948 , Medicinal and Toilet Preparation Act –1955.	U, AP	C&P	PO1, PO2, PO4
CO4	Narcotic Drugs and Psychotropic substances Act-1985 Study of Drugs and magic remedies Act and its rules.	U, AP	C&P	PO1, PO2, PO4
CO5	Study of essential Commodities Act Relevant to drugs price control Order & Drug Price control Order & National Drug Policy	U, AP	C&P	PO1, PO2, PO4
CO6	Prevention of Cruelty to animals Act-1960 & Patents & design Act-1970 and Brief study of prescription and Non-prescription Products	U, AP	C&P	PO1, PO2, PO4



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Medicinal Chemistry

Academic year: 2023-24

Program: Pharm D III Year

Faculty in Charge: Mr.Nagraj ND

Section: Theory

At the end of the course the student will able to

Sl. No.	Course Outcome (CO)	Cognitive level (CL)R/U/AP/An/E/C	Knowledge Categories (KC)F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Understand the Modern concept of rational drug design.QSAR, prodrug,combinatorial, chemistry,computer aided drug design and concept ofantisense molecules. mechanism of action,synthesis, chemical nomenclature, brand names of important marketed products and their side effects.	U	C	PO1 &PO3
CO2	Explain Anti-infective agents,Antifungal agents, Urinary tract anti-infectives , Antitubercular agents, Antiviral agents, Anti AIDS agents,Antiprotozoal agents , Anthelmintics , Antiscabies and Antipedicular agents	U	C &P	PO1 &PO3
CO3	Explain Sulphonamides and sulphones, Antimalarial, Antibiotics and Antineoplastic agents	U	C&P	PO1 &PO3
CO4	Explain Cardiovascular agents,Antihypertensive agents, Antiarrhythmic agents, Antianginal agents and vasodilators , Antihyperlipidemic agents , Coagulants and Anticoagulants and Endocrine	U	C&P	PO1 &PO3
CO5	Explain Hypoglycemic agents, Thyroid and Antithyroid agents Diuretics , Diagnostic agents. Steroidal Hormones and Adrenocorticoids	U	C&P	PO1 &PO3



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Medicinal Chemistry

Academic year: 2023-24

Program: Pharm D III Year

Faculty in Charge: Mr.Nagraj ND

Section: Practical

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An /E/C	Knowledge Categories (KC) F/C/P/M	Programme outcomes (PO) PO1/PO2,PO3....P O11
CO1	Perform the synthesis of Dichloramine –T, 2,3 diphenylQuinoxaline, Benzimidazole,Fluorescein Eosin, 4-hydroxy,4-methyl coumarin and Chlorambutanol, Phenothiazine	U	C &P	PO1 &PO3
CO2	Estimate of Ascorbic acid, Metronidazole , Isoniazid, Chloroquine phosphate, Dapsone, Sulhadiazine	U	C &P	PO1 &PO3
CO3	Determine the Monograph analysis of Aspirin, Paracetamol, Caffiene, Isoniazid and Atropine sulphate	U	C&P	PO1 &PO3



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmaceutical Formulation

Academic year: 2023-24

Program: Pharm D III Year

Faculty in Charge: Mr. Anand Gupta

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/ E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3PO11
CO1	Understand the concept and classification involved in formulation of various pharmaceutical dosage forms	U	C	PO1
CO2	Explain the formulation,evaluation of tablets. Tablet coating, quality control tests for coated tablet	U, AP	C &P	PO1, PO2, PO4
CO3	Explain the production and filling of hard gelatin & soft gelatin capsules, quality control tests for capsules.	U, AP	C&P	PO1, PO2, PO4
CO4	Explain the formulation and evaluation of suspensions, emulsions and solutions. And Stability of these preparations	U, AP	C&P	PO1, PO2, PO4
CO5	Understand the containers used for Parenterals andExplain formulation of large and small volume Parenterals	U, AP	C&P	PO1, PO2, PO4
CO6	Explain ophthalmic preparations, ointment, jellies and Summarize the concept of Controlled and Novel drug delivery systems viz. parenteral, trans dermal, buccal, rectal, nasal, implants, ocular	U, AP	C&P	PO1, PO2, PO4



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmaceutical Formulation

Academic year: 2023-24

Program: Pharm D III Year

Faculty in Charge: Mr. Anand Gupta Section:

Practical

At the end of the course the student will able to

Co. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/ An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3...PO11
CO1	Explain the concept and classification involved in formulation of various pharmaceutical dosage form and formulation, evaluation of tablets. Tablet coating, quality control tests for coated tablet	U	C,P	PO1,PO4, PO11
CO2	Explain the production and filling of hard gelatin & soft gelatin capsules, quality control tests for capsules	U	C,P	PO1, PO4,PO11
CO3	Explain the formulation and evaluation of suspensions, emulsions and solutions. And Stability of these preparations	U	C,P	PO1,PO4PO11
CO4	Understand the containers used for Parenterals and Explain formulation of large and small volume Parenterals	U	C,P	PO1,PO4,PO11
CO5	Understand the ophthalmic preparations	U	C,P	PO1, PO4, PO11
CO6	Understand the concept of Controlled and Novel drug delivery systems.	U	C,P	PO1, PO4,PO11



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Pharm D IV Year

Name of Course: Pharmacotherapeutics-III

Academic year: 2023-24

Program: Pharm D IV Year

Faculty in Charge: Dr. Narendra Verma

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Explain the Etiopathogenesis of selected gastrointestinal, hematological, neurological and psychiatric diseases.	U	C	PO1
CO2	Discuss the principal of evidence based therapy and pain management	R/U	F	PO1
CO3	Identify the patient specific parameters relevant in initiating and monitoring drug therapies and adverse effects.	U/Ap	C	PO1,PO3
CO4	Discuss the therapeutic approach in the management of selected diseases and controversies in drug therapy	U	C /MC	PO1,PO2
CO5	Prepare individualized therapeutic plans based on diagnosis.	U/Ap	C	PO1,PO2,PO6
CO6	Recognize the role of pharmacist in essential and rational drug use	U	C	PO1,PO6, PO8



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmacotherapeutics-III

Academic year: 2023-24

Program: Pharm D IV Year

Faculty in Charge: Dr. Narendra Verma

Section: Practical

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Identify the drug interactions and rationalize the drug therapy	An/Ap	P	PO1,PO2,PO3
CO2	Discuss the therapeutic approach to management of selected disease	Ap	P	PO1,
CO3	Prepare individualized therapeutic plans based on diagnosis.	U/Ap	P/Mc	PO1,PO2
CO4	Conduct patient counseling	U	Mc	PO1,PO8,PO6
CO5	Identify the adverse reactions	U/Ap	P	PO1,PO3



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Hospital Pharmacy

Academic year: 2023-24

Program: Pharm D IV Year

Faculty in Charge: Dr. E Satheesh Kumar

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E /C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Classify the drug distribution methods	U	MC/C	P01, P09, P011
CO2	Exemplify the professional practice management skills in the hospital pharmacies	U	MC/C	P01, P02, P06, P09, P011
CO3	Produce unbiased drug information to the doctors	C	MC/F	P01, P02, P05, P06, P07, P08, P09, P011
CO4	Explain the manufacturing practices of formulations in hospital set up	U	MC/C	P01, P02, P04, P06, P09, P011
CO5	Describe the practice based research methods	R	MC/C	P01, P02, P09, P011
CO6	Determine the stores management and inventory control	Ap	MC/P	P01, P02, P05, P06, P09, P011



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Hospital Pharmacy

Academic year: 2023-24

Program: Pharm D IV Year

Faculty in Charge: Dr. E Satheesh Kumar

Section: Practical

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E /C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Evaluate the assessment of drug interactions in the given prescription	E	MC	P01,P02,P03, P05, P06, P09, P011
CO2	Determine the manufacture of parenteral formulations and powders	Ap	MC/P	P01,P02, P03, P05,P06, P09, P011
CO3	Evaluate the drug information queries	E	MC	P01,P02,P03, P05, P06, P09, P011
CO4	Determine the inventory control	Ap	MC/P	P01,P02,P05, P06, P09, P011



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Clinical Pharmacy

Academic year: 2023-24

Program: Pharm D IV Year

Faculty in Charge: Mrs. Jayashree K

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E /C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Monitor the drug therapy of patient through medication chart review and clinical review	E	MC	P01, P02, P05, P06, P08 P09, P011
CO2	Implement medication history interview and counsel the patients	Ap	MC	P01, P02, P05,P06, P08, P09, P011
CO3	Recall and solve the drug related problems	R/Ap	MC	P01, P02, P03, P05, P06, P07, P08, P09, P011
CO4	Detect, assess and monitor the adverse drug reactions	E	MC/P	P01, P02, P03, P04, P06, P07, P08, P09, P011
CO5	Interpret the selected laboratory results as monitoring parameters in therapeutics of specific disease states	U/E	MC/P	P01, P02, P03, P05, P06, P07, P08, P09, P011
CO6	Select, analyze, interpret and formulate drug or medicine information	An/U/C	MC	P01, P02, P03, P05, P06, P09, P011



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Clinical Pharmacy

Academic year: 2023-24

Program: Pharm D IV Year

Faculty in Charge: Mrs. Jayashree K

Section: Practical

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E /C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Plan to answer drug information questions	C	MC	P01, P02, P03, P05, P06, P07, P08, P09, P011
CO2	Execute patient medication counselling	Ap	MC	P01, P02, P03, P05,P06, P07,P08, P09, P011
CO3	Determine case studies related to laboratory investigation	Ap	MC/P	P01, P02, P05, P06, P07 P08, P09, P011
CO4	Execute patient medication history interview	Ap	MC	P01, P02, P03, P05, P06, P07, P08, P09, P011



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Biostatistics & Research Methodology

Academic year: 2023-24

Program: Pharm D IV Year

Faculty in Charge: Mr. Anand Gupta

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Concept of Research Methodology - understanding about Types of clinical study designs, Designing the methodology, sample size, Report writing and presentation of data.	U/R	F	PO2,PO3,PO4
CO2	Understanding Biostatistics –Data and central tendency distributions, measurement of data, data graphics, basic testing of hypothesis and Statistical methods in epidemiology.	U/R	F/P	PO3,PO4
CO3	Understanding Computer applications in pharmacy – Use of computers in Hospital pharmacy, community pharmacy and Drug Information Retrieval & Storage.	U/R	F/P	PO3,PO4,PO6



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Biopharmaceutics & Pharmacokinetics

Academic year: 2023-24

Program: Pharm D IV Year

Faculty in Charge: Dr. E Satheesh Kumar

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An /E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO 11
CO1	Introduction to Biopharmaceutics, Absorption of drugs from gastrointestinal tract.	U, AP	C	PO1, PO10, PO11
CO2	Drug Distribution and Elimination	U, AP	C &P	PO1, PO10, PO11
CO3	Pharmacokinetics: One compartment open model: a. Intravenous Injection (Bolus) b. Intravenous infusion. Multicompartment models: a. Two compartment open model. b. IV bolus, IV infusion and oral administration	U, AP	C&P	PO1, PO10, PO11
CO4	Multiple – Dosage Regimens & Nonlinear Pharmacokinetics	U, AP	C&P	PO1, PO10, PO11
CO5	Noncompartmental Pharmacokinetics,	U, AP	C&P	PO1, PO10, PO11
CO6	Bioavailability and Bioequivalence	U, AP	C&P	PO1, PO10, PO11



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Biopharmaceutics & Pharmacokinetics

Academic year: 2023-24

Program: Pharm D IV Year

Faculty in Charge: Dr. E Satheesh Kumar

Section: Practical

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/ E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3PO11
CO1	Improvement of dissolution characteristics of slightly soluble drugs by some methods	U, AP, An	C	PO1
CO2	Comparison of dissolution studies of two different marketed products of same drug and Influence of polymorphism on solubility and dissolution	U, AP, An	C &P	PO1,PO2, PO4
CO3	Protein binding studies of a highly protein bound drug and poorly protein bound drug	U, AP, An	C&P	PO1,PO2, PO4
CO4	Calculation of K_a , K_e , $t_{1/2}$, C_{max} , AUC, AUMC, MRT etc. from blood profile data	U, AP, An	C&P	PO1,PO2, PO4
CO5	Calculation of bioavailability from urinary excretion data for two drugs && Determination of renal clearance	U, AP, An	C&P	PO1,PO2, PO4
CO6	Effect on contact time on the plasma protein binding of drugs and Calculation of AUC	U, AP, An	C&P	PO1,PO2, PO4



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Clinical toxicology

Academic year: 2023-24

Program: Pharm D IV Year

Faculty in Charge: Dr.Shyam Nandan Yadav

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/ E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO)PO1/PO2,PO3....PO 11
CO1	Understand general working knowledge of the principles and practice of clinical toxicology	U	C	PO1,PO3,PO4
CO2	Demonstrate an understanding of health implications of toxic exposure and commonly involved chemicals for toxicity	AP/U	C/P	PO1,PO3,PO4
CO3	Demonstrate and apply an understanding of the history ,assessment and therapy associated with management of toxic exposure	AP/U	F/P	PO1,PO3,PO4
CO4	Demonstrate and apply understanding of characteristics of treatment guidelines for specific toxic substance	AP/U	C/P	PO1,PO4,PO5
CO5	Know several preventive approaches to reduce unintentional poisoning	R/U	C	PO1,PO4
CO6	Demonstrate an understanding of general toxicology principles and clinical management practice	AP/U	C/P	PO1,PO4



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Pharm D V Year

Name of Course: Clinical Research

Academic year: 2023-24

Program: Pharm D V Year

Faculty in Charge: Dr. Abhishek U N

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E /C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Discuss the pharmacological and toxicological considerations in process of development of new drugs	U	C	PO1
CO2	Discuss the principal and phases in clinical trial of drug	U	C	PO1
CO3	Explain the guidelines for ethics and safe monitoring in clinical trial of a drug	U	F/C	PO1,PO3
CO4	Design the documents of clinical trial	U/AP	C /MC	PO1,PO2
CO5	Distinguish the guidelines of national and international regulatory bodies for clinical trial	U	C	PO1,PO2,PO6
CO6	Recognize differing roles and obligations of the investigator, sponsor and institutional review board.	U	C	PO1,PO6, PO8



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Pharmacoepidemiology and Pharmacoeconomics

Academic year: 2023-24

Program: Pharm D V Year

Faculty in Charge: Dr. Manasa Reddy

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E/ C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO)PO1/PO2,PO3.... PO11
CO1	Define Pharmacoepidemiology and mention its scope	R	F	P01, P011
CO2	Understand the measurement of outcomes in Pharmacoepidemiology	U	C	P01, P09, P011
CO3	Understand the concept of risk in pharmacoepidemiology	U	C	P01, P09, P011
CO4	Classify the pharmacoepidemiological methods and Describe the applications of pharmacoeconomics	R	C	P01, P011
CO5	Differentiate the sources of data for pharmacoepidemiological studies and pharmacoeconomic evaluations	U/E	C	P01, P09, P011
CO6	Describe the selected special applications of pharmacoepidemiology and pharmacoeconomics and describe the history and needs of pharmacoeconomic evaluations	U/E	F	P01, P011



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes

Name of Course: Clinical pharmacokinetic & therapeutic drug monitoring

Academic year: 2023-24

Program: Pharm D V Year

Faculty in Charge: Dr. Narendra Varma

Section: Theory

At the end of the course the student will able to

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An/E /C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
CO1	Apply the concept of pharmacokinetics to individualize the drug dosage regimen	AP	C	PO1,PO4,PO5
CO2	Design a dosage regimen of drug based on its route of administration	AP	F/MC	PO1,PO4
CO3	Design & implement pharmacokinetic services such as intravenous to oral conversion& TDM services	AP	C/MC	PO1,PO4,PO7,
CO4	Understand the significance of altered pharmacokinetics, pharmacogenetics	U	C	PO1,PO4
CO5	Understand to adjust the dosage regimen for patients with renal & hepatic impairment	U	F/C	PO1,PO4,PO7
CO6	Assess the drug interaction issues in the clinical setting and Design & implement TDM for various drugs	An AP	C	PO1,PO3,PO4, PO5 PO7 PO8



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes (PO)

Name of Course: Modern Pharmaceutical Analytical Techniques

Program: M. PHARM I SEM

Section: Theory (60 Hours)

ACADEMIC YEAR : 2023-2024

Faculty in Charge: Dr. Vachala S D

Upon completion of the course student shall be able to:

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An /E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
01	Explain general principles and theory of spectroscopy	U	F,C,P	PO1,PO3,PO4.
02	Understand the basic instrumentation of HPTLC, HPLC, GC for identification, and characterization of compounds.	U	C,P	PO1,PO3,PO4.
03	Understand the basic concept and instrumentation of Chromatographic techniques and identification of compounds by electrophoresis technique.	U	C,P	PO1,PO3,PO4.
04	Understand the basic concept and instrumentation of nmr & mass spectrophotometer	U	C,P	PO1,PO3,PO4.
05	Understand the basic principles and instrumentation of fluorimeter and atomic absorption spectrometer	U	C,P	PO1,PO3,PO4.
06	Identify organic compounds by –X-ray crystallography	U	C,P	PO1,PO3.



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes (PO)

Name of Course: Modern Pharmaceutical Analytical Techniques

Program: M. PHARM I SEM

Section: Practical

ACADEMIC YEAR : 2023-2024

Faculty in Charge: Dr. Vachala S D

Upon completion of the course student shall be able to:

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An /E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
01	Demonstrate the working procedure of UV-Visible Spectroscopy and explain the study of max.	U	F,C,P	PO1,PO3,PO4.
02	Experiment with UV -Visible Spectroscopy and determine the Percentage purity of Drugs and Formulation.	U	C, P	PO1,PO3,PO4.
03	Measure the amount and percentage purity of Drug and formulation by using HPLC and GC.	U	C, P	PO1,PO3,PO4.
04	Utilize the Flame photometry equipment to determine the concentration of metals	U	C, P	PO1,PO3,PO4.
05	Discuss the interpretation of Mass spectrum with the support of Mass spectrum	U	C, P	PO1,PO3,PO4.
06	Utilize the fluorimetry equipment to determine the concentration of fluorescent compounds	U	C, P	PO1,PO3,PO4.



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes (PO)

Name of Course: Modified Release Drug Delivery System

Program: M. PHARM I SEM

Section: Theory (60 Hours)

ACADEMIC YEAR: 2023-2024

Faculty in Charge: Mrs. Sujatha P M

Upon completion of the course student shall be able to:

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An /E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
01	Understand the various approaches for development of novel drug delivery systems.	R and U	C	PO1 and PO11
02	Understand the various approaches for development of rate controlled drug delivery systems.	R and U	C	PO1 and PO11
03	Explain the gastro retentive drug delivery systems.	U, A and E	C and P	PO1, PO2, PO4 and PO11
04	Understand ocular drug delivery systems and vaccine delivery systems.	R and U	C	PO1 and PO11
05	Explain the transdermal drug delivery systems.	U, A and E	C and P	PO1, PO2, PO4 and PO11
06	Understand the protein and peptide delivery.	R and U	C	PO1, PO2and PO11



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes (PO)

Name of Course: Modern Pharmaceutics

Program: M. PHARM I SEM

Section: Theory (60 Hours)

ACADEMIC YEAR: 2023-24

Faculty in Charge: Hindustan Abdul Ahad

Upon completion of the course student shall be able to:

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An /E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
01	Understand the elements of pre-formulation studies. API and generic drug product development.	R, U and A	C and P	PO1, PO4 and PO11
02	Explain the optimization techniques in pharmaceutical formulations.	R, A, and U	C and P	PO1, PO2, PO3 and PO11
03	Understand the pharmaceutical validation.	R and U	C	PO1 and PO11
04	Describe cGMP and industrial management.	R and U	C	PO1 and PO11
05	Determine the compression and compaction of tablets.	R, U A and E	C and P	PO1, PO2, PO3 PO4 and PO11
06	Calculate the consolidation parameters.	R, A, and U	C and P	PO1, PO2, PO3 PO4 and PO11



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes (PO)

Name of Course: Pharmaceutics I

Program: M. PHARM I SEM

Section: Practical

ACADEMIC YEAR: 2023-2024

Faculty in Charge: Hindustan Abdul Ahad

Upon completion of the course student shall be able to:

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An /E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
01	Perform In-vitro dissolution profile of CR/ SR marketed formulation and the effect of compressional force on tablets disintegration time.	AP, E	C,P	PO2,PO3,PO4, PO11
02	Perform Preformulation studies of tablets and Micromeritics properties of powders and granulation	Ap, E	C,P	PO2,PO3,PO4, PO11
03	Perform the effect of particle size on dissolution of a tablet and effect of binders on dissolution of a tablet	AP, E	C,P	PO2,PO3,PO4, PO11
04	Plot Heckal plot, Higuchi and peppas plot and determine similarity factors.	AP, E	C,P	PO2,PO3,PO4, PO11
05	Formulate and evaluate the sustained release matrix tablets osmotically controlled DDS	AP, E	C,P	PO2,PO3,PO4, PO11
06	Prepare and evaluate Floating DDS, Muco adhesive tablets & trans dermal patches	AP, E	C,P	PO2,PO3,PO4, PO11



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes (PO)

Name of Course: Regulatory Affairs

Program: M. PHARM

Section: Theory (60 Hours)

ACADEMIC YEAR: 2023-2024

Faculty in Charge: Mahalingan K

Upon completion of the course student shall be able to:

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An /E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
01	Explain the Regulatory guidance's and guidelines for filling and approval process.	U	F,P	PO1,PO2,PO6
02	Summarize the post regulatory affairs and ICH guidelines.	U,AP	C,P,AN	PO1,PO2,PO3,PO4,PO11
03	Summarize the global submission of IND,NDA and ANDA	U,AP	C	PO1,PO2,PO3, PO4, PO11
04	Explain the preparation of Dossiers and their submission to regulatory agencies .	U	C,P	PO1,PO2,PO4
05	Summarize Pharmacovigilance and process of clinical monitoring.	U	F	PO1,PO2,PO6



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes (PO)

Name of Course: Molecular Pharmaceutics (Nano Tech and Targeted DDS)

Program: M. PHARM II SEM

ACADEMIC YEAR: 2023-2024

Section: Theory (60 Hours)

Faculty in Charge: Hindustan Abdul Ahad

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An /E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
Upon completion of the course student shall be able to:				
01	Understand Quality-by-Design in Pharmaceutical Development.	AP, E	C,P	PO2,PO3,PO4, PO11
02	Perform DoE Using Design Expert® Software Formulation data analysis Using Design Expert® Software.	AP, E	C,P	PO2,PO3,PO4, PO11
03	Perform the effect of temperature change , non- solvent addition, incompatible polymer addition in microcapsules preparation	AP, E	C,P	PO2,PO3,PO4, PO11
04	Formulate and evaluate Alginate beads, gelatin /albumin microspheres	AP, E	C,P	PO2,PO3,PO4, PO11
05	Formulate and evaluate liposomes/niosomes & spherules	AP, E	C,P	PO2,PO3,PO4, PO11
06	Explain Computer Simulations in Pharmacokinetics and Pharmacodynamics and Computational Modeling Of Drug Disposition	AP, E	C,P	PO2,PO3,PO4, PO11



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes (PO)

Name of Course: Advanced Biopharmaceutics & Pharmacokinetics.

Program: M. PHARM II SEM

Section: Theory (60 Hours)

ACADEMIC YEAR: 2023-2024

Faculty in Charge: Sujatha P Muchalambe

Upon completion of the course student shall be able to:

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An /E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
01	Understand the basic concepts in Biopharmaceutics and pharmacokinetics and their significance.	U, AP	C	PO1, PO10, PO11
02	Understand the concepts of bioavailability and bioequivalence of drug products and their significance.	U, AP	C &P	PO1, PO10, PO11
03	Apply Pharmacokinetics: One compartment open model .a. Intravenous Injection (Bolus) b. Intravenous infusion. Multi compartment model, Two compartment open model. Explain Non-Linear pharmacokinetics.	U, AP	C&P	PO1, PO10, PO11
04	Apply bioavailability and bioequivalence of drug products	U, AP	C&P	PO1, PO10, PO11
05	Apply pharmacokinetics for MRDDS and TDDS. Understand proteins and peptides.	U, AP	C&P	PO1, PO10, PO11



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes (PO)

Name of Course: Computer Aided Drug Delivery Systems

Program: M. PHARM II SEM

Section: Theory (60 Hours)

G

ACADEMIC YEAR: 2023-2024

Faculty in Charge: Mahalingan K

Upon completion of the course student shall be able to:

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An /E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3.....PO11
01	Understand the Computers in Pharmaceutical Research and Development	R, U and A	C and P	PO1, PO4 and PO11
02	Explain the Computational Modeling of Drug Disposition	R, U A and E	C and P	PO1, PO2, PO3 , PO4 and PO11
03	Understand the Computer-aided formulation development	R, U A and E	C and P	PO1, PO2, PO3, PO4 and PO11
04	Describe Computer-aided biopharmaceutical characterization	R, U A and E	C and P	PO1, PO2, PO3, PO4 and PO11
05	Explain the artificial Intelligence (AI), Robotics and Computational fluid dynamics	R, U A and E	C and P	PO1, PO2, PO3, PO4 and PO11



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes (PO)

Name of Course: Cosmetics & Cosmeceuticals

Program: M. PHARM II SEM

Section: Theory (60 Hours)

ACADEMIC YEAR: 2023-2024

Faculty in Charge: K.S.Srilatha

Upon completion of the course student shall be able to:

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An /E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
01	Explain the formulations approaches and requirements as per EU Guidelines.	U	F,P	PO1,PO2,PO6
02	Summarize the plant layout ,factory requirements and commonly used cosmetics raw materials	U,AP	C,P,AN	PO1,PO2,PO3,PO4,PO11
03	Summarize the design of special purpose cosmeceutical product.	U,AP	C	PO1,PO2,PO3, PO4, PO11
04	Explain various Herbal ingredients used in Herbal cosmetics.	U	C,P	PO1,PO2,PO4
05	Summarize cosmetics safety and formulation of lip care product.	U	F	PO1,PO2,PO6



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes (PO)

Name of Course: Pharmaceutics II

Program: M. PHARM II SEM

Section: Practical

ACADEMIC YEAR: 2023-2024

Faculty in Charge: Sujatha P Muchalambe

Upon completion of the course student shall be able to:

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An /E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
01	Apply & evaluate solid dispersion technique ,highly & poorly protein bound drug and dissolution of two marketed products.	U & AP	C & P	PO1,PO2 &PO3
02	Determine & apply bioavailability studies of paracetamol	U & AP	C&P	PO1,PO2&PO3
03	Apply & evaluate pharmacokinetic & IVIVC data analysis, in vitro cell studies for permeability.	U & AP	C&P	PO1,PO2&PO3
04	Apply DoE Using design Expert,Quality –by-design ,computer simulations in pharmacokinetics & pharmacodynamics	U & AP	C&P	PO1,PO2&PO3
05	Apply & evaluate computational modeling of drug disposition ,develop clinical data modeling, creams, shampoo, toothpaste.	U& AP	C&P	PO1 ,PO2&PO3
06	Understand herbal & chemical activities to develop products .Dry skin,acne,blemish, wrinkles,bleeding gums & dandruff.	U & AP	C&P	PO1,PO4



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes (PO)

Name of Course: Research Methodology And Biostatistics

Program: M. PHARM III SEM

Section: Theory

ACADEMIC YEAR : 2023-2024

Faculty in Charge: K.S.Srilatha

Upon completion of the course student shall be able to:

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An /E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
01	Formulation of various cosmetics	R, U, AP	F, C,P	PO1, PO3, PO4, PO11.
02	Formulation of dermatological preparations, herbal tablets, capsules, aromatherapy formulations & cough syrup.	R, U, AP, An	F, C, P	PO1, PO3, PO4, PO9, PO11.
03	Preparation and standardization of Ayurveda, Siddha, Homeopathy and Unani formulary	R, U, AP, An, E	F, C, P	PO1, PO3, PO4, PO9, PO11.



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes (PO)

Name of Course: Modern Pharmaceutical Analytical Techniques

Program: M. PHARM I SEM

Section: Theory (60 Hours)

ACADEMIC YEAR : 2023-2024

Faculty in Charge: Dr. Vachala

Upon completion of the course student shall be able to:

Course Outcome (CO)	Cognitive level (CL) R/U/AP/An /E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
Explain general principles and theory of spectroscopy	U	F,C,P	PO1,PO3,PO4.
Understand the basic instrumentation of HPTLC, HPLC, GC for identification, and characterization of compounds.	U	C,P	PO1,PO3,PO4.
Understand the basic concept and instrumentation of Chromatographic techniques and identification of compounds by electrophoresis technique.	U	C,P	PO1,PO3,PO4.
Understand the basic concept and instrumentation of nmr & mass spectrophotometer	U	C,P	PO1,PO3,PO4.
Understand the basic principles and instrumentation of fluorimeter and atomic absorption spectrometer	U	C,P	PO1,PO3,PO4.
Identify organic compounds by –X-ray crystallography	U	C,P	PO1,PO3.



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Course out Comes and Programme outcomes (PO)

Name of Course: Modern Pharmaceutical Analytical Techniques

Program: M. PHARM I SEM

Section: Practical

ACADEMIC YEAR : 2023-2024

Faculty in Charge: Dr. Vachala

Upon completion of the course student shall be able to:

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An /E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3.....PO11
01	Demonstrate the working procedure of UV-Visible Spectroscopy and explain the study of max.	U	F,C,P	PO1,PO3,PO4.
02	Experiment with UV -Visible Spectroscopy and determine the Percentage purity of Drugs and Formulation.	U	C, P	PO1,PO3,PO4.
03	Measure the amount and percentage purity of Drug and formulation by using HPLC and GC.	U	C, P	PO1,PO3,PO4.
04	Utilize the Flame photometry equipment to determine the concentration of metals	U	C, P	PO1,PO3,PO4.
05	Discuss the interpretation of Mass spectrum with the support of Mass spectrum	U	C, P	PO1,PO3,PO4.
06	Utilize the fluorimetry equipment to determine the concentration of fluorescent compounds	U	C, P	PO1,PO3,PO4.



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes (PO)

Name of Course: Advanced Pharmacognosy I

Program: M. PHARM I SEM

Section: Theory (60 Hours)

ACADEMIC YEAR : 2023-2024

Faculty in Charge: Dr. Seema Gupta

Upon completion of the course student shall be able to:

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An /E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
01	Explain Advances in the cultivation, production and conservation of medicinal plants	U	F,P	PO1,PO2,PO6
02	Explain Marine natural products and its isolation, purification, advances in marine research.	U, An	C,P	PO1,PO2,PO3,PO4,PO11
03	Summarize the nutraceuticals/herbs and their health benefits	U, AP	C	PO1,PO2,PO3, PO4, PO11
04	Explain various phytopharmaceuticals and their source & utilization and medicinal value	U	C,P	PO1,PO2,PO4
05	Summarize Pharmacovigilance of drugs of natural origin	U	F	PO1,PO2,PO6



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes (PO)

Name of Course: Phytochemistry I

Program: M. PHARM I SEM

Section: Theory (60 Hours)

ACADEMIC YEAR : 2023-2024

Faculty in Charge: Dr. Seema Gupta

Upon completion of the course student shall be able to:

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An /E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
01	List the different classes of phytoconstituents with properties and its importance in herbal industries	U,AP	F,P	PO1,PO2,PO6
02	Explain the general process of natural product drug discovery and development	U,AP	C,P	PO1,PO2,PO3,PO4,PO11
03	Infer in the isolation, characterization and purification of phytoconstituents using advanced technology	U,AP	C,P	PO1,PO2,PO3, PO4, PO11
04	Determine the pharmacological uses of natural drugs by using pharmacological screening techniques	U, AP	C,P	PO1,PO2,PO4,PO11



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes (PO)

Name of Course: Industrial Pharmacognostical Technology

Program: M. PHARM I SEM

Section: Theory (60 Hours)

ACADEMIC YEAR : 2023-2024

Faculty in Charge: Dr. NarayanaSwamy

Upon completion of the course student shall be able to:

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An /E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
01	Understand the requirements for setting up the herbal drug industry & modernization of the herbal formulations.	R, U, AP, C	P, MC	PO1, PO2, PO3, PO4, PO5, PO11.
02	Understand the regulatory requirements, global marketing, TDM, GMP, GLP and ISO-9000.	R, U, AP	C, P, MC	PO1, PO5, PO6, PO7, PO9, PO11.
03	Explain the monographs of herbal drugs and comparative study with IP, USP, Ayurvedic pharmacopoeias etc and WHO guidelines in quality assessment of herbal drug	R, U, An	F, C	PO1, PO3, PO4, PO5.
04	Describe the testing of natural products and drugs.	R, U, An, E	F, C	PO1, PO2, PO3, PO4, PO5, PO11.
05	Understand the Indian and International patent laws, GI, Copyrights, procedure for patent filling and various aspects of patent.	R, U, AP	F, C, MC	PO1, PO2, PO3, PO5, PO9, PO11.



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes (PO)

Name of Course: Pharmacognosy Practical I

Program: M. PHARM I SEM

Section: Theory (60 Hours)

ACADEMIC YEAR : 2023-2024

Faculty in Charge: Dr. NarayanaSwamy

Upon completion of the course student shall be able to:

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An /E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
01	Analysis of the herbal formulation by UV spectrophotometer.	AP, An	F, C	PO1, PO3, PO4
02	Perform different methods of extraction, phytochemical screening & identification of bioactive constituents of plant extracts.	AP, An	F, C	PO1, PO3, PO4
03	Perform chromatographic evaluation.	AP, An, E	F, C	PO1, PO3, PO4
04	Analysis of unorganised drugs with reference to monograph.	AP, An, E	F, C, P	PO1, PO3, PO4



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes (PO)

Name of Course: Medicinal Plant Biotechnology

Program: M. PHARM II SEM

Section: Theory (60 Hours)

ACADEMIC YEAR : 2023-2024

Faculty in Charge: Dr. Seema Gupta

Upon completion of the course student shall be able to:

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An /E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
01	Explain the plant biotechnology as a source of medicinal plants and its applications in pharmacy and allied fields.	U,AP	C,P	PO1,PO2,PO6
02	Determine the tissue culture techniques of medicinal and aromatic plants and their applications.	U,AP	C,P	PO1,PO2,PO4,PO6, PO11
03	Explain the immobilization techniques of plant cell and its application on Secondary metabolite production	U,AP	C,P	PO1,PO2,PO6
04	Determine the quality of medicinal plants improvement using advanced biotechnological techniques	U,AP,AN	C,P	PO1,PO2,PO4,PO6, PO11
05	Explain Fermentation Technology and production of phytopharmaceuticals.	U,AP	C,P	PO1,PO2,PO4,PO6,PO11.



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes (PO)

Name of Course: Medicinal Plant Biotechnology

Program: M. PHARM II SEM

Section: Practical

ACADEMIC YEAR : 2023-2024

Faculty in Charge: Dr. Seema Gupta

Upon completion of the course student shall be able to:

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An /E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
01	Perform isolation of nucleic acid from cauliflower and RNA from Yeast	U,AN	C,P	PO1,PO2,PO6
02	Estimate DNA and immobilize the whole cell	U,AN	C,P	PO1,PO2,PO4,PO6
03	Perform the Quantitative estimation of aldehyde , Phenolic, Alkaloidal, Flavonoid content in Herbal raw materials	AN, R, E	C,P	PO1,PO2,PO4,PO6
04	Explain the Callus and suspension culture in medicinal plants for higher yield of Phytopharmaceuticals.	U,AN	C,P	PO1,PO2,PO4,PO6



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes (PO)

Name of Course: Advanced Pharmacognosy II

Program: M. PHARM II SEM

Section: Theory (60 Hours)

ACADEMIC YEAR : 2023-2024

Faculty in Charge: Dr. NarayanaSwamy

Upon completion of the course student shall be able to:

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An /E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
01	Explain Herbal remedies ,toxicity and validation of herbal remedies	U, AN	C,P	PO1,PO2,PO3,PO4,PO11
02	Explain methods of detection of adulteration and evaluation techniques for the herbal drugs	U, AN	C,P	PO1,PO2,PO3,PO4,PO11
03	Summarize the Ethnobotany and Ethnopharmacology	U, AP	C	PO1,PO2,PO3, PO4, PO11
04	Explain various analytical profiles of herbal drugs	U, AN	C,P	PO1,PO2,PO3,PO4,PO11
05	Summarize methods of screening of herbals for various biological properties	U, AN	C,P	PO1,PO2,PO3,PO4,PO11



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes (PO)

Name of Course: Indian System of Medicine

Program: M. PHARM II SEM

Section: Theory (60 Hours)

ACADEMIC YEAR : 2023-2024

Faculty in Charge: Ms Vishwamyna

Upon completion of the course student shall be able to:

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An /E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
01	Explain the fundamental concepts and dosage forms of Ayurveda, Siddha, Unani and Homeopathy.	U,AP	C,P	PO1,PO2,PO3,PO4,PO6, PO9,P10,PO11
02	Explain the basic principles of Naturopathy, Yoga and Aromatherapy.	U,AP	C,P	PO1,PO2,PO5,PO6, PO9, P10, PO11
03	Explain the formulation development of various systems of medicine.	U,AP, AN	C,P	PO1,PO2,PO3,PO4, PO5, PO6, PO9,P10,PO11
04	Explain the Good Manufacturing Practice of Indian System of Medicine.	U,AP	C,P	PO1,PO2,PO3,PO4,PO6, PO9,P10,PO11
05	Summarize the various government skills in Indian system of medicine institutes.	U,AP	C,P	PO1,PO2,PO3,PO4,PO6, PO9,P10,PO11



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes (PO)

Name of Course: Herbal Cosmetics

Program: M. PHARM II SEM

Section: Theory (60 Hours)

ACADEMIC YEAR : 2023-2024

Faculty in Charge: Dr. V B Narayanaswamy

Upon completion of the course student shall be able to:

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An /E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
01	Explain the basic principles and GMP of herbal/natural cosmetic preparations.	U,AP	C,P	PO1,PO2,PO3,PO4,PO6, PO9,P10,PO11
02	Outline the herbal cosmetics for skin and cosmeceuticals of herbal and natural origin.	U,AP,AN	C,P	PO1,PO2,PO5,PO6, PO9, P10, PO11
03	Explain the materials and excipients used in herbal cosmetic formulations.	U,AP, AN	C,P	PO1,PO2,PO3,PO4, PO5, PO6, PO9,P10,PO11
04	Explain the cosmetics analysis, toxicity screening and quality control tests.	U,AP	C,P	PO1,PO2,PO3,PO4,PO6, PO9,P10,PO11



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes (PO)

Name of Course: Pharmacognosy Practical-II

Program: M. PHARM II SEM

Section: Practical

ACADEMIC YEAR : 2023-2024

Faculty in Charge: Dr. Seema Gupta

Upon completion of the course student shall be able to:

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An /E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
01	Formulation of various cosmetics	R, U, AP	F, C,P	PO1, PO3, PO4, PO11.
02	Formulation of dermatological preparations, herbal tablets, capsules, aromatherapy formulations & cough syrup.	R, U, AP, An	F, C, P	PO1, PO3, PO4, PO9, PO11.
03	Preparation and standardization of Ayurveda, Siddha, Homeopathy and Unani formulary	R, U, AP, An, E	F, C, P	PO1, PO3, PO4, PO9, PO11.



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INTERNAL QUALITY ASSURANCE CELL (IQAC)

Course out Comes and Programme outcomes (PO)

Name of Course: Research Methodology And Biostatistics

Program: M. PHARM III SEM

Section: Theory

ACADEMIC YEAR : 2023-2024

Faculty in Charge: Mrs. K S. Srilatha

Upon completion of the course student shall be able to:

Sl. No	Course Outcome (CO)	Cognitive level (CL) R/U/AP/An /E/C	Knowledge Categories (KC) F/C/P/MC	Programme outcomes (PO) PO1/PO2,PO3....PO11
01	Understand Statistics, Biostatistics, Frequency distribution. Measures of central tendency, Measures of dispersion and Correlation.	R, U A and E	C, P	PO1, PO4,PO11
02	Understand Regression,Probability and Parametric test.	R, U A and E	C, P	PO1, PO2, PO3 , PO4 and PO11
03	Explain Non Parametric tests.	R, U A and E	C, P	PO1, PO2, PO3 , PO4 and PO11
04	Know the need for design of Experiments, Experiential Design Technique, plagiarism, Graphs and Designing the methodology for formulation.	R, U A and E	C, P	PO1, PO2, PO3 , PO4 and PO11
05	Know the CPCSEA guidelines for laboratory animal facility.	R, U A and E	C, P	PO1, PO2, PO3 , PO4 and PO11
06	Know the declaration of Helsinki.	R, U A and E	C,P	PO1, PO2, PO3 , PO4 and PO11