



2.6: STUDENT PERFORMANCE & LEARNING OUTCOME

2.6.1: Program Outcomes (POs) & Course Outcomes (COs) attainment and evaluation



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PROGRAM OUTCOMES (POs) AND COURSE OUTCOMES (COs) ATTAINMENT AND EVALUATION PROCESS



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PROGRAM OUTCOMES (POS) AND COURSE OUTCOMES (COS) ATTAINMENT AND EVALUATION PROCESS

Outcome-based education (OBE) is a didactic pedagogy which focuses on student centric teaching learning methods. According to OBE approach, it is expected that each student would attain a level of proficiency after completion of course and thereby attain a set level of accomplishment in specific program.

SCES's Indira College of Pharmacy, Pune has implemented Outcome-Based Education (OBE) model of teaching-learning from AY 2020-21 as directed by NAAC. The institute has adopted Program Outcomes (POs) defined by National Board of Accreditation (NBA).

Establishing COs and POs

The CO statements are defined in accordance with the University course structure, considering each topic/ module of a course. The keywords used to define COs are based on Bloom's Taxonomy. Bloom's Taxonomy has been developed to promote higher forms of thinking in education, like analyzing, evaluating and creating instead of only remembering facts as in conventional education. It is most referred while designing course outcomes. For every course, there may be 6 or 7 COs including theory and practical. Program Outcomes (POs) and Course Outcomes (COs) for all Programs offered by the institution are stated and displayed on website. CO statements are developed by the course in-charge in consultation with HOD. The correlation between COs and POs is done through mapping using Correlation levels as 1 (slight/low), 2 (Moderate/Medium), 3 (Substantial/High) or – (No correlation)

Students, faculty and other stakeholders (Alumni, Parents, Industry, etc.) are made aware of these COs and POs through display on institute's website. In addition, each subject teacher makes students aware about respective Course Outcomes before starting subject delivery.

Attainment level is decided by course in-charge in consultation with HOD as per the difficulty level of the course




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Evaluation of Attainment of course outcomes

Attainment of course outcomes are evaluated as per following table


Method	Tools for Assessment	% Contribution	
Direct (Internal + External)	Internal Sessional Examinations including continuous assessment	30	80
	Annual University Examination	70	
Indirect	Course Exit Survey	20	

Evaluation of Attainment of Program outcomes

Attainment of Program outcomes are evaluated as per following table

Method	Tools for Assessment	% Contribution
Direct	PO attainment of all courses (average)	80%
Indirect	1. Program Exit Survey 2. Guest lectures 3. Conferences organized 4. Industrial visits organized 5. Participation in National Pharmacy Week Competitions 6. Participation in NSS activities 7. Certification program 8. Extracurricular activities 9. Internship 10. Clerkship	20%




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PHARMACY PROGRAM OUTCOMES (POs)



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PHARMACY PROGRAM OUTCOMES

1. **Pharmacy Knowledge:** Possess knowledge and understanding of the basic concepts and their applications in the profession of pharmacy, to gain appreciation in professional pharmacy as well as in society at large.
2. **Planning Abilities:** Demonstrate the ability to plan and implement professional activities like patient care in cooperation with patients, prescribers, and other members of an interprofessional health care team based upon sound therapeutic principles and evidence-based data, taking into account relevant legal, ethical, social cultural, economic, and professional issues, emerging technologies, and evolving biomedical, pharmaceutical, social or behavioral or administrative, and clinical sciences that may impact therapeutic outcomes.
3. **Problem analysis:** Utilize the principles of scientific enquiry, thinking analytically, clearly, and critically, while solving problems and making decisions during daily pharmacy practice or clinical pharmacy services. Find, analyze, evaluate and apply information systematically and shall make defensible decisions.
4. **Modern tool usage:** Learn, select, and apply appropriate methods and procedures, resources, and modern pharmacy-related computing tools with an understanding of the limitations.
5. **Leadership skills:** To develop leadership qualities to function effectively as a member of the health care team organized to deliver the health and family welfare services in existing socio-economic, political and cultural environment.
6. **Professional Identity:** Understand, analyze and communicate the value of their professional roles in society (e.g. health care professionals, promoters of health, educators, managers, employers, employees).
7. **Pharmaceutical Ethics:** Honour personal values and apply ethical principles in professional and social contexts. Demonstrate behavior that recognizes cultural and personal variability in values, communication and lifestyles. Use ethical frameworks; apply ethical principles while making decisions and take responsibility for the outcomes associated with the decisions.




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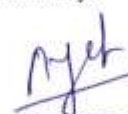


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8. **Communication:** Communicate effectively with the pharmacy community and with society at large to promote health; to provide, assess, and coordinate safe, accurate, and time-sensitive medication distribution; and to improve therapeutic outcomes of medication use.
9. **The Pharmacist and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety and legal issues and the consequent responsibilities relevant to the professional pharmacy practice and increase awareness in society and health professionals about the effective, safe and rational use of medicines.
10. **Environment and sustainability:** Understand the impact of the professional pharmacy solutions in societal and environmental contexts and demonstrate skills in monitoring of the National Health Programmes and schemes, oriented to provide preventive and promotive health care services to the community.
11. **Life-long learning:** Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change through continuous learning to face the challenges for better services to the community.




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PROGRAM SPECIFIC OUTCOMES (PSOs)

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PROGRAM SPECIFIC OUTCOMES (PSOs)**(B. Pharm & M. Pharm)**

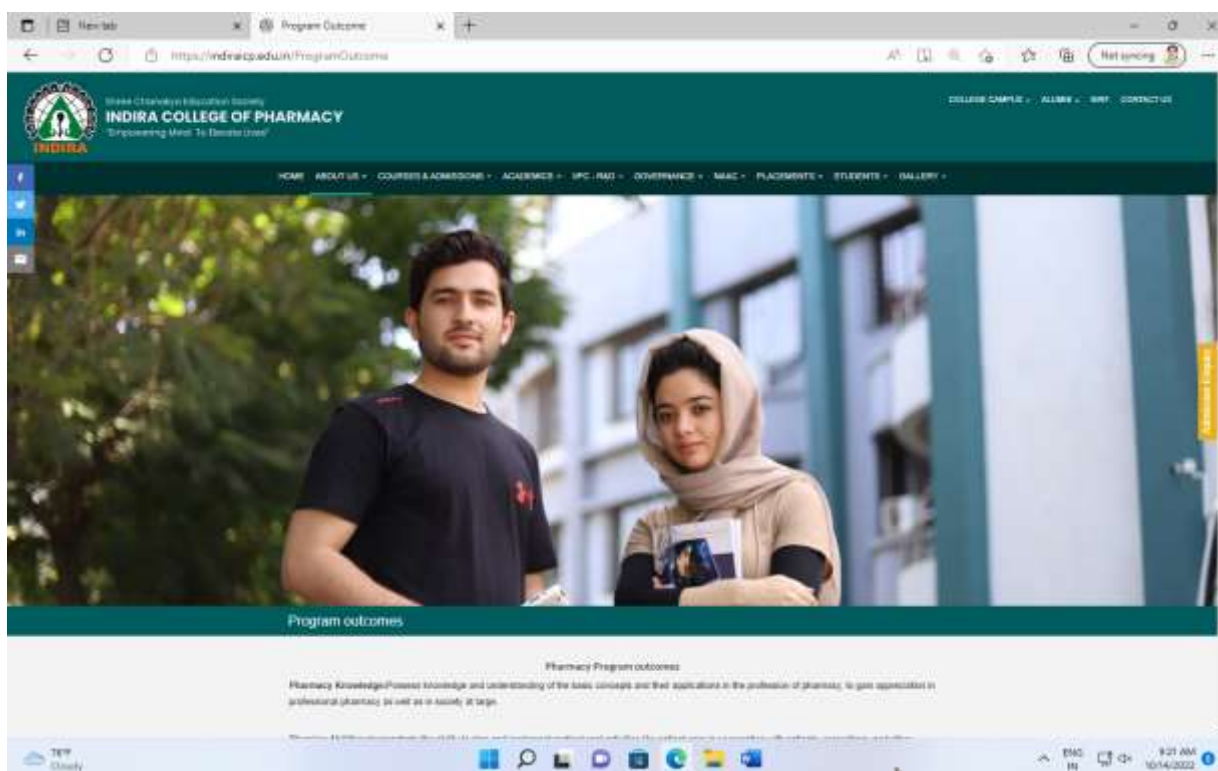
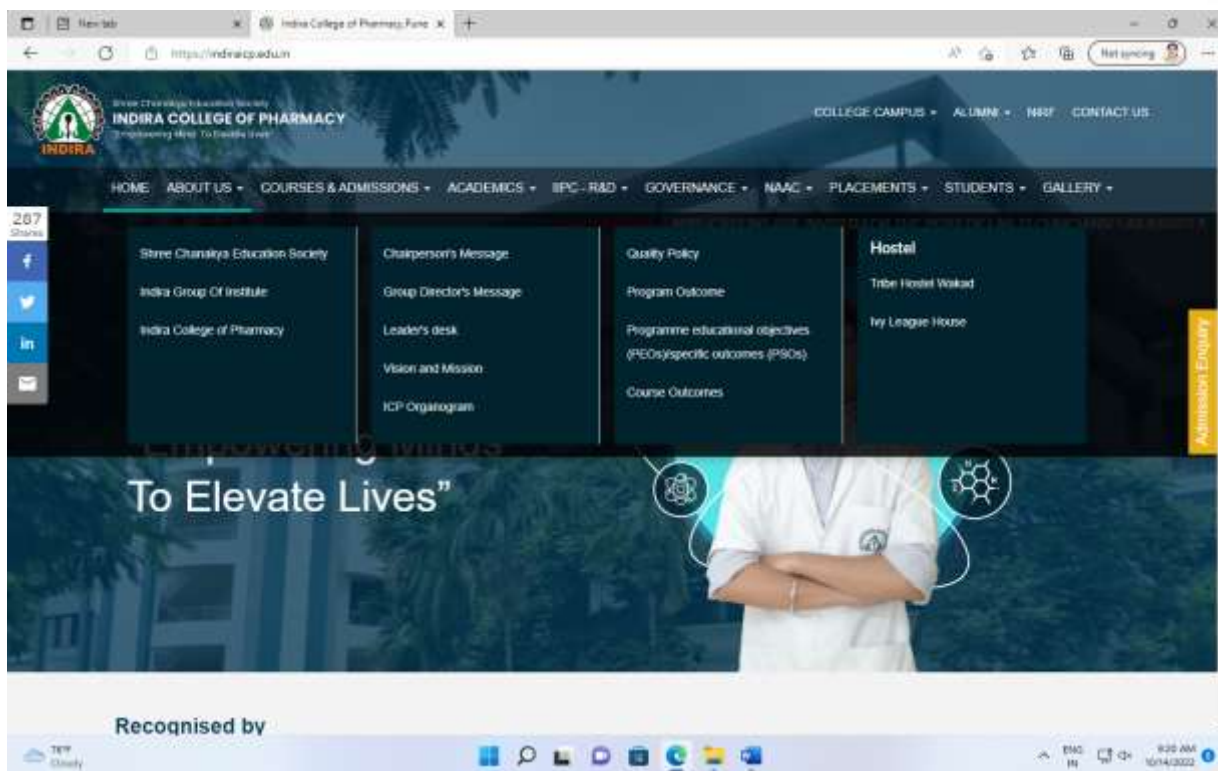
- To train students at the graduate level theoretically as well as practically in various branches like Pharmacognosy, Pharmaceutical Chemistry, Pharmaceutics, Pharmacology, and Pharmacy Practice in order to develop them into competent professionals, future leaders and responsible citizens.
- To impart various skills and hands-on training to the aspiring Pharmacists to fulfill the requirements of the industry & society, thereby leading to creation of employment opportunities.
- To inculcate entrepreneurial abilities in the students and encourage them to start commercial production of drugs and formulations, sales & marketing, repackaging, retail, wholesale businesses.
- To enable student community to pursue for higher education & research in Pharmaceutical and healthcare field.
- To develop the domain knowledge right from the drug discovery up to its final administration to patient to alleviate suffering of humanity through the study and practice of Pharmacy and to bring health and happiness to all.

(Pharm D & Pharm D PB)

- To provide competent pharmacy graduate to hospitals and Healthcare sector, pharmaceutical industry through excellent pharmacy education.
- To develop clinical expertise and skills to provide patient care, taking into account legal, ethical, social cultural, economic, and professional aspects.
- To update student knowledge with emerging technologies, in the field of biomedical and pharmaceutical sector, along with social or behavioral and clinical sciences that may impact therapeutic outcomes.
- To strengthen professional and ethical attitude to promote health improvement and disease prevention in co-operation with patients, communities, vulnerable population, and other professional health care providers.

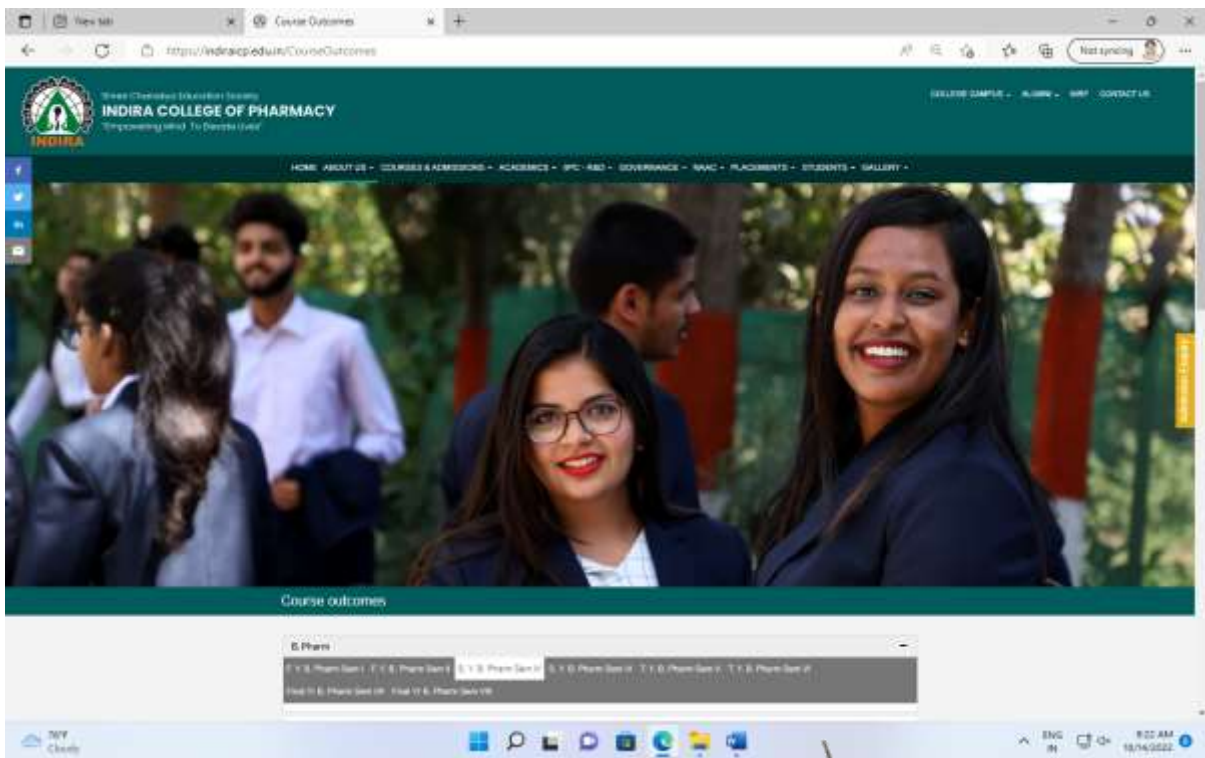
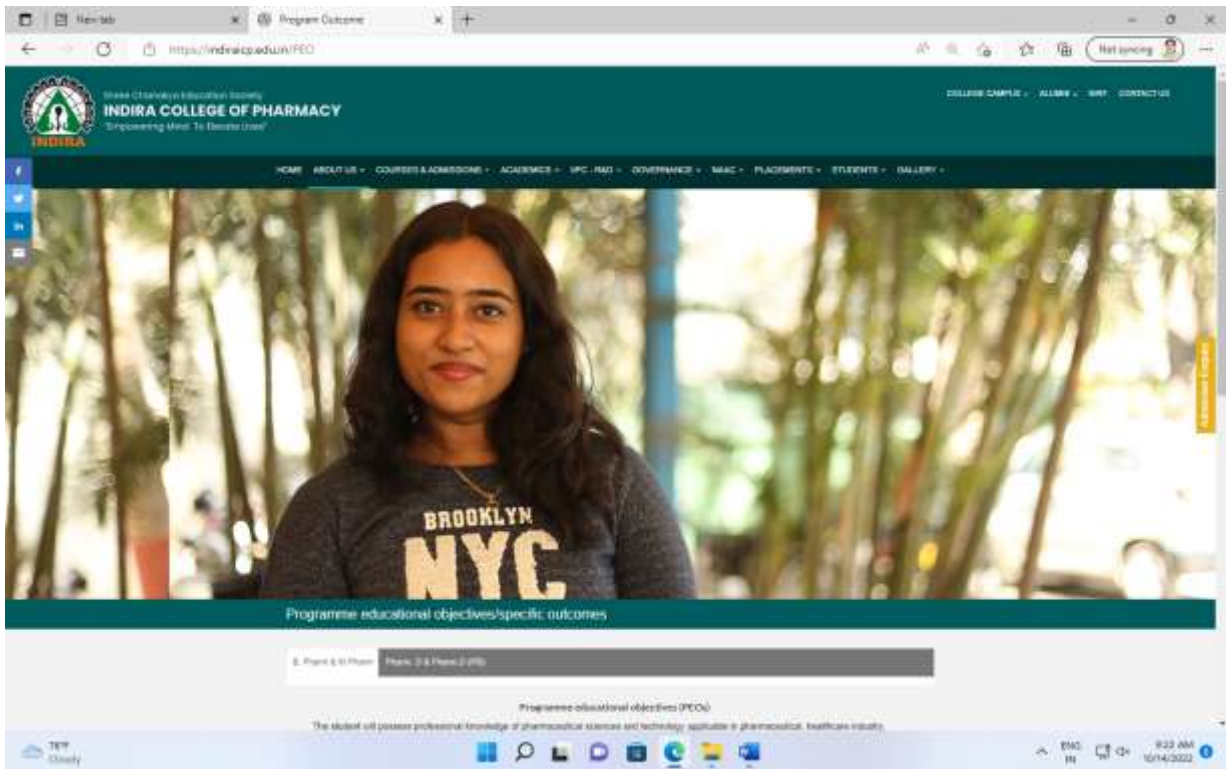



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Anagha
(Dr. Anagha M. Joshi)
Principal

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Mjeh
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COURSE OUTCOMES (COs)- B PHARMACY (AY 2020-21 & 2021-22)



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COURSE OUTCOMES (COs)
B. PHARMACY
(AY:2020-21 & 2021-22)

Name of subject	CO No	Course outcome
F. Y. B. Pharm Sem I (AY:2020-21 & 2021-22)		
Pharmaceutical Inorganic Chemistry	COBP104.1T	Explain the effects of impurities in pharmaceuticals.
	COBP104.2T	Describe the principles and methods of limit tests to control common impurities in pharmaceutical substances.
	COBP104.3T	Explain different pharmaceutical buffers, their preparations, uses in pharmaceutical system, measurement of tonicity.
	COBP104.4T	To understand the medicinal and pharmaceutical importance of inorganic compounds
	COBP104.5T	Appreciate the importance of inorganic pharmaceuticals in preventing and curing the disease.
	COBP110.6P	Adjudge the level of specific impurities in the given inorganic compounds by performing different limit tests.
	COBP110.7P	Use different chemical methods to prepare inorganic pharmaceuticals.
	COBP110.8P	To Perform identification tests as per Indian Pharmacopoeia.
Pharmaceutics I	COBP103.1 T	Explain the evolution, scope and ethics of profession of pharmacy to prepare the safe and appropriate medication to improve health
	COBP103.2 T	Describe the handling of prescription in a professional manner, drug interactions, adverse effects associated with active pharmaceutical ingredient and excipients
	COBP103.3 T	Formulation, dispensing and evaluation of various dosage forms such as powders, liquid and semi-solid dosage forms for the benefit of society.
	COBP103.4 T	Identify & suggest correction method for any possible pharmaceutical incompatibility in a formulation/prescription
	COBP103.5 T	Elaborate the different pharmaceutical calculations involved in formulation.
	COBP109.6 P	Explain the basic principles and calculations involved in the conduct of experiments to prepare different dosage forms.
	COBP109.7 P	Select an appropriate container and storage conditions for a product along with the labeling of pharmaceuticals.



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Human Anatomy and Physiology I	COBP101.1 T	Understand the basic concepts and terminologies used in human anatomy and physiology.
	COBP101.2 T	Explain the gross morphology, structure and functions of various organs of the human body.
	COBP101.3 T	Describe the various homeostatic mechanisms and their imbalances.
	COBP101.4 T	Identify the various tissues and organs of different systems of human body.
	COBP101.5 T	Appreciate coordinated working pattern of different organs of each system.
	COBP107.1 P	Perform the various experiments related to hematological test like blood cell count, haemoglobin estimation, bleeding/clotting time etc.
	COBP107.2 P	Identify axial and appendicular bones of human skeleton.
Pharmaceutical Analysis I	COBP102.1 T	Explain the basic concepts and principle of various types of titrations as acid base, non-aqueous, precipitation, complexometric, redox etc.
	COBP102.2 T	Apply the concept of titrimetry in analyzing some pharmaceutically important compound.
	COBP102.3 T	Illustrate various methods of expressing concentration and types of standards used in volumetric analysis.
	COBP102.4 T	Predict the sources of errors commonly encountered during drug analysis and identify the methods to minimize them.
	COBP102.5 T	Describe in detail other analytical methods as electrochemical, Gravimetry and Refractometry including their applications.
	COBP108.6 P	Perform the assay of compounds using different titration methods along with preparation and standardization of titrant.
	COBP108.7 P	Employ the electroanalytical methods to find out end point of titration and using it determine the normality of solution.
Remedial Biology	COBP106RB.1 T	Know the classification and salient features of five kingdoms of life.
	COBP106RB.2 T	Understand the basic components of cell biology, anatomy and physiology of plant.



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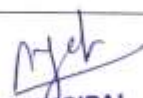
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	COBP106RB.3 T	Corelate the basic components of anatomy and physiology of animal with special reference to human.
	COBP112RB.1 P	Apply the basic techniques to experiments in biology like mounting and staining, section cutting, slide preparation etc.
	COBP112RB.2 P	Describe the various methods for study of root, leaf, seed, flower and their modification, study of frog using computer models etc.
Communication Skills	COBP105.1 T	Discuss Importance of communication and communication Process
	COBP105.2 T	Illustrate various kind of communications with examples
	COBP105.3 T	Understand Basic Listening Skills and Effective Written Communication
	COBP105.4 T	Evaluate interview Skills, Planning and Delivering of Presentation and various techniques involved in delivery of presentation
	COBP105.5 P	Develop Do's and Don'ts of group discussion, interview skill, effective written and verbal communication




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COURSE OUTCOMES (COs)

B. PHARMACY

(AY:2020-21 & 2021-22)

F. Y. B. Pharm Sem II (AY:2020-21 & 2021-22)		
Human Anatomy and Physiology II	COBP201.1 T	Understand the homeostatic mechanisms and altered physiology of nervous and digestive system.
	COBP201.2 T	Explain the homeostatic mechanisms and altered physiology of respiratory and urinary system.
	COBP201.3 T	Describe the homeostatic mechanisms and altered physiology of endocrine and reproductive system.
	COBP201.4 T	Appreciate the interlinked mechanisms in the maintenance of normal functioning of human body.
	COBP201.5 T	Apply the basic knowledge gained by this course to understand the other disciplines of pharmacy with the help of models, charts, specimens.
	COBP207.1 P	Demonstrate the visual, reflex activity and general neurological examinations.
	COBP207.2 P	Determine the tidal volume, vital capacity and the study of various family planning methods.
Pharmaceutical Organic Chemistry I	COBP202.1T	To be able to give the structure, name and the type of isomerism of the organic compound
	COBP202.2T	Explain the reaction, name the reaction and orientation of reactions
	COBP202.3T	Explain basic functional groups & IUPAC Nomenclature of Organic Compounds
	COBP202.4T	Explain the reactivity/stability of compounds
	COBP202.5T	Explain different reaction intermediates and their applications in reaction mechanism.
	COBP208.6P	Identify/confirm the unknown organic compound.
	COBP208.7P	To perform common laboratory techniques including Melting Point, Boiling Point, distillation, recrystallization, filtration etc, and understand the use of stereo models.
	COBP208.8P	Basic knowledge regarding general methods of preparation of organic compounds.



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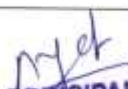


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Biochemistry	COBP203.1T	Recall the chemistry and biological importance of biological macromolecules.
	COBP203.2T	Make use of metabolism of carbohydrate, lipid, protein and their role in human body.
	COBP203.3T	Simplify the enzyme structure, their function, mechanism for enzymatic activity and application of enzyme.
	COBP203.4T	Explain the genetic organization of mammalian genome and functions of DNA in synthesis of RNA and Proteins.
	COBP209.5P	Explain the knowledge in quantitative and qualitative estimation of the biological macromolecules.
	COBP209.6P	Identify and characterize carbohydrates, proteins by qualitative analysis.
	COBP209.7P	Analyze blood creatinine, sugar, total cholesterol and action of salivary amylase.
	COBP209.8P	Determine the interpretation of data emanating from a clinical test lab.
Pathophysiology	COBP204.1T	Elaborate pathophysiology of major organ systems, some and few diseases and disorder
	COBP204.2T	Relate the knowledge of human anatomy and physiology to understand the pathophysiology
	COBP204.3T	Analyze the pathophysiological condition of patient to derive some conclusion
	COBP204.4T	Explain the mechanism the body uses to react to stressors and pathogens.
	COBP204.5T	Describe the influence of genetics and genomics on disease.
Computer applications in pharmacy	COBP205.1 T	Apply the knowledge of mathematics and computing fundamentals to pharmaceutical applications for any given requirement.
	COBP205.2 T	Develop solutions to analyze pharmaceutical problems using computers.
	COBP205.3 T	Apply efficiently the contemporary IT tools to all Pharmaceutical related activities.
	COBP205.4 T	Understand bioinformatics and their impact in vaccine discovery.


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	COBP205.5 T	Identify the role of computers for data analysis in the field of preclinical development.
	COBP210.6 P	Analyze the different types of databases and how to create data bases using MS Access, SQL.
	COBP210.7 P	Retrieve the information of a drug and its adverse effects using online tools.
EVS	COBP206.1T	Create the awareness about environmental problems
	COBP206.2T	understanding issues related to environment and their impact on the human life
	COBP206.3T	Understanding of different component of environment and their function and sustainable development
	COBP206.4T	Motivate learner to participate in environment protection and environment improvement.



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COURSE OUTCOMES (COs)

B. PHARMACY

(AY:2020-21 & 2021-22)

S. Y. B. Pharm Sem III (AY:2020-21 & 2021-22)		
Physical Pharmaceutics I	COBP302.1T	State the physicochemical properties of drug molecules, concept of solubility and distribution law
	COBP302.2T	Explain the surface and interfacial phenomenon and role of surfactants
	COBP302.3T	Investigate and apply various theories, laws and equations related to different states of matter
	COBP302.4T	Distinguish the principles of complexation/ protein binding & to use them for calculations of drug release and stability constant.
	COBP302.5T	Apply the concept of pH, isotonic solutions in preparation of pharmaceutical and biological buffers
	COBP306.6P	Demonstrate use of Solubility of drugs, phase diagrams and distribution law in in the formulation development and evaluation of dosage forms.
	COBP306.7P	Apply the principles of thermodynamics using solubility studies
Pharmaceutical Organic Chemistry II	COBP301.1T	Clarify Isomerism & apply that knowledge in understanding the Structure Property Relationship.
	COBP301.2T	Explain chemistry and stability of some organic compounds.
	COBP301.3T	Understand the concept of aromaticity and reactivity of benzene and monosubstituted benzene.
	COBP301.4T	Discuss the method of preparation and chemical reactions of some organic compounds
	COBP305.5P	Explain and understand the principle behind various qualitative tests and analyze the given unknown organic binary mixture compound having different functional groups.
	COBP305.6P	Discuss Principle, Reaction mechanism and application for synthesize certain organic compounds through benzylation, halogenation, nitration, oxidation, hydrolysis, Perkins and Claisen condensation reactions
	COBP305.7P	Determine the saponification value of oil samples



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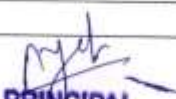
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Pharmaceutical Microbiology	COBP303.1T	Understand the scope of microbiology and its branches, methods of classification.
	COBP303.2T	Demonstrate the importance of sterilization in microbiology and pharmaceutical industry.
	COBP303.3T	Apply the knowledge in identification, cultivation, and preservation of various microorganisms.
	COBP303.4T	Employ the knowledge to control the microbe by physical and chemical methods.
	COBP303.5T	Understand the cell culture technology and its applications in pharmaceutical industries.
	COBP307.6P	Will be familiar with the sterility testing of pharmaceutical products.
	COBP307.7P	Have a better understanding of the tests for the microbiological standardization of pharmaceuticals, isolation and identification of microbes.
Pharmaceutical Engineering	COBP304.1T	Know various unit operations used in pharmaceutical industries.
	COBP304.2T	Understand the various laws, mechanisms of unit operations.
	COBP304.3T	Know the principle, construction, working, uses, advantages and disadvantages of pharmaceutical equipment used for various unit operations
	COBP304.4T	Understand significance of plant layout design for optimum use of resources,
	COBP304.5T	Know various preventive methods used for corrosion control in pharmaceutical industries.
	COBP304.6T	Understand the concepts of heat transfer and fluid flow.
	COBP308.7P	Understand the material handling techniques.
	COBP308.8P	Learn the various processes involved in pharmaceutical manufacturing process.




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COURSE OUTCOMES (COs)

B. PHARMACY

(AY:2020-21 & 2021-22)

S. Y. B. Pharm Sem IV (AY:2020-21 & 2021-22)		
Pharmacology I	COBP404.1T	Define and discuss terms and concepts surrounding to pharmacology and understand the basics of Pharmacokinetics and pharmacodynamics.
	COBP404.2T	Compare and describe the various routes of administration and elaborate the process of new drug discovery and development of drug.
	COBP404.3T	Discuss various bounding and nonbounding interactions of drugs with receptors
	COBP404.4T	Explain pharmacology of some important class of drugs and describe the concept of adverse drug reaction and drug toxicity.
	COBP408.5P	Demonstrate the Computer simulations of experiments through simulated software program.
	COBP408.6P	Demonstrate the role of experimental animals in pharmacological and toxicological research and explain the CPCSEA and OECD guidelines.
	COBP408.7P	Evaluate the pharmacological activity of drug with respect to behavioral and central nervous system pharmacology.
Pharmacognosy and Phytochemistry I	COBP 405 T1	Learn the techniques in the cultivation and production of crude drugs
	COBP 405 T2	Explain knowhow of the crude drugs, their uses and chemical nature
	COBP 405 T3	Learn the evaluation techniques for the herbal drugs
	COBP 405 T4	Carry out the microscopic and morphological evaluation of crude drugs
	COBP 405 P1	Learn the techniques of quality control and analytical evaluation of crude drugs
	COBP 405 P2	Identify crude drugs and carry out the crude drug analysis



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Medicinal Chemistry-I	COBP402.1T	Explain the classes and chemistry of drugs acting on nervous system, opioid and non-opioid receptor with respect to their pharmacological activity
	COBP402.2T	Describe the structural Activity Relationship (SAR) of different class of drugs and mechanism of action of certain pharmacodynamics agents.
	COBP402.3T	Correlate the physicochemical properties and metabolism of drugs with biological activity.
	COBP402. 4T	Outline the structure and chemical synthesis of some drugs.
	COBP406. 5P	Understand the principle and illustrate reaction mechanism and medicinal uses of various drugs and intermediates.
	COBP406. 6P	Explain significance of the pharmacokinetic parameters and its relationship with chemical structure.
	COBP406. 7P	Understand and application of the concept of column chromatography
Physical Pharmaceutics-II	COBP403.1T	Recognize the principles of chemical kinetics and use them for stability testing and determination of expiry date of formulation.
	COBP403.2T	Describe colloidal and coarse dispersion and apply the principles in formulation development and evaluation of dosage form.
	COBP403.3T	Explain the concept of flow properties of solids and its application in preparation of pharmaceutical dosage form
	COBP403.4T	Relate rheological properties of liquids and semisolids in designing of dosage form
	COBP403.5T	Demonstrate the behavior and mechanism of drugs and excipients in the formulation development and evaluation of dosage forms
	COBP403.6P	understand sedimentation behavior of coarse dispersions and order of reaction of various first and second order reaction
	COBP403.7P	know flow properties of solids and rheological properties of liquids by suitable methods



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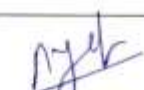
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Pharmaceutical Organic Chemistry III	COBP401.1T	Understand the chemistry of heterocyclic compounds.
	COBP401.2T	Illustrate the methods of preparation and properties of heterocyclic compounds.
	COBP401.3T	Explain the stereochemical aspects of organic compounds and stereo chemical reactions.
	COBP401.4T	Discuss the medicinal uses and other applications of organic compounds.
	COBP401.5T	Elaborate the important name reactions for synthesis of organic compound.




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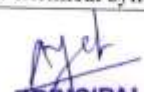
COURSE OUTCOMES (COs)

B. PHARMACY

(AY:2020-21 & 2021-22)

T. Y. B. Pharm Sem V (AY:2020-21 & 2021-22)		
Pharmacognosy and phytochemistry II	COBP504.1T	Understand biosynthetic pathways for biosynthesis of secondary metabolites.
	COBP504.2T	Determine biosynthetic pathways using radioactive isotopes.
	COBP504.3T	Know classification of secondary metabolites and their biological sources
	COBP504.4T	Explore chemistry of secondary metabolite.
	COBP504.5T&P	Isolate desired phytoconstituents.
	COBP504.6T&P	Analyze qualitative and quantitative phytochemical analysis.
	COBP504.7T	Know industrial production of phytoconstituents.
	COBP504.8T	Discuss modern extraction and analytical techniques.
Industrial Pharmacy I	COBP502.1T &P	Apply the knowledge of Preformulation for formulation development
	COBP502.2T &P	Illustrate various pharmaceutical dosage forms and their manufacturing techniques
	COBP502.3T &P	Recognize various factors to be considered in development of pharmaceutical dosage forms
	COBP502.4T &P	Formulate solid, liquid and semisolid dosage forms
	COBP502.5T &P	Evaluate various pharmaceutical dosage forms for their quality and stability
	COBP502.6T &P	Discuss container closure system for various dosage forms along with its evaluation and stability
Medicinal chemistry -II	COBP501.1T	Explain the chemistry of drugs acting on cardiovascular system, endocrine system, histaminic receptor, used in diabetes and Local anesthetics with respect to their pharmacological activity.
	COBP501.2T	Describe the structural Activity Relationship (SAR) of different class of drugs and mechanism of action of certain agents.
	COBP501.3T	Understand the drug metabolic pathways, adverse effect and therapeutic value of drugs
	COBP501.4T	Outline the structure and chemical synthesis of some drugs.




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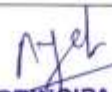
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Pharmacology II	COBP503.1 T	Understand the mechanism of drug action and its relevance in the treatment of different diseases.
	COBP503.2 T	Explain the pharmacology of drugs acting on heart, blood and blood forming agents.
	COBP503.3 T	Study different hormones, their actions, uses and disorders.
	COBP503.4 T	Appreciate correlation of pharmacology with related medical sciences.
	COBP503.5 P	Demonstrate isolation of different organs/tissues from the laboratory animals by stipulated experiments.
	COBP503.6 P	Demonstrate the various receptor actions using isolated tissue preparation.
	COBP503.7 P	Discuss principles, types and methods of bioassay.
Pharm Jurisprudence	COBP505.1 T	Acquire knowledge on schedule rules, laws and regulations related to Drugs and Cosmetics
	COBP505.2 T	Elaborate the legislations to control the operations regulating the dangerous drugs, poisons and opium
	COBP505.3 T	Understand the concept of legislations to control the advertisements, excise duties and price of drugs.
	COBP505.4 T	Describe the significance and relevance of pharmaceutical laws in India and role of Ethics in pharmacy profession while dealing with patients, public, fellow pharmacist and members of medical profession
	COBP505.5 T	Explain other legislations relating to pharmaceutical industry and profession such as Patent and design act, Medical termination of pregnancy act and prevention of cruelty to animals act.




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COURSE OUTCOMES (COs)

B. PHARMACY

(AY:2020-21 & 2021-22)

T. Y. B. Pharm Sem VI (AY:2020-21 & 2021-22)		
Quality Assurance	COBP606.1 T	Describe the significance of quality in pharmaceutical industry and outline the concept of quality by design, TQM.
	COBP606.2 T	Summarize quality assurance systems, processes, cGMP guidelines related to manufacturing and distribution, GLP and ICH stability testing guidelines
	COBP606.3 T	Recognize the role of various regulatory bodies as CDSCO, USFDA, WHO, PIC/S and understand the scope of quality certifications applicable to pharmaceutical industries.
	COBP606.4 T	Discuss the points to be considered for personnel, Premises, equipment, raw materials and appreciate the importance of effective documentation.
	COBP606.5 T	Elaborate on the role of validation in assurance of quality in pharmaceutical industry & Quality Control of Packaging material
	COBP606.6 T	Categorize different types of complaints and identify ways to handle them.
Herbal Drug technology	COBP 603.1T	Understand raw material as source of herbal drugs from cultivation to herbal drug product
	COBP 603.2T	Know the WHO and ICH guidelines for evaluation of herbal drugs
	COBP 603.3T&P	Explore the herbal cosmetics, natural sweeteners, nutraceuticals.
	COBP 603.4T	Appreciate patenting of herbal drugs, GMP.
	COBP 609.1P	Comprehend preliminary phytochemical screening of crude drugs
	COBP 609.2P	Acquire knowledge of the monograph analysis of herbal drugs from recent Pharmacopoeias.



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Biopharm and Pharmacokinetics	COBP 604.1T	Discuss the concept of biopharmaceutics and its applications in formulation development.
	COBP 604.2T	Use plasma drug concentration-time data to calculate the pharmacokinetic parameters to describe the kinetics of drug absorption, distribution, metabolism, excretion, elimination.
	COBP 604.3T	Study pharmacokinetic processes and their relevance in efficacy of dosage form.
	COBP 604.4T	Learn the concepts of bioavailability and bioequivalence studies.
	COBP 604.5T	Learning various compartmental models and non-compartmental analysis methods
	COBP 604.6T	Understand the concept and mechanisms of dissolution and in vitro in vivo correlation
Pharmacology III	COBP602.1 T	Understand the mechanism of drug action and its relevance in the treatment of different infectious diseases.
	COBP602.2 T	Discuss the pharmacological features of drugs acting on respiratory system and Gastrointestinal tract.
	COBP602.3 T	Comprehend the principles of toxicology and treatment of various poisonings.
	COBP602.4 T	Appreciate correlation of pharmacology with related medical sciences.
	COBP608.1 P	Determine the principles of animal toxicology and bioassay.
	COBP608.2 P	Apply biostatistics methods in experimental pharmacology.
Medicinal Chemistry -III	COBP601.1T	Explain the chemistry of various chemotherapeutic agents.
	COBP601.2T	Describe the structural Activity Relationship (SAR) of different class of drugs, mechanism of action and therapeutic value of drugs
	COBP601.3T	Outline the chemical synthesis and structure of some drugs.
	COBP601.4T	Understand the importance of drug design and different techniques of drug design.
	COBP607.1 P	Synthesis of drugs and intermediates by convention and microwave assisted synthesis.
	COBP607.2 P	To sketch chemical structures and reactions using Chem draw software and determination of physicochemical properties for class of drugs using drug design software.




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Pharmaceutical biotechnology	COBP605.1T	Understand the importance of Immobilized enzymes in Pharmaceutical Industries.
	COBP605.2T	Explore genetic engineering applications in relation to production of pharmaceuticals.
	COBP605.3T	Describe importance of Monoclonal antibodies in Industries.
	COBP605.4T	Appreciate the use of microorganisms in fermentation technology.


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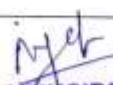
COURSE OUTCOMES (COs)

B. PHARMACY

(AY:2020-21)

Final Yr B. Pharm Sem VII (AY: 2020-21)		
Sterile Product	CO 4.7.1.1 T	Understand various routes of parenteral administration, general requirements, significance of tonicity adjustment and sterility and their preformulation studies.
	CO 4.7.1.2 T	Describe the GMP and design and layout of Parenteral Production Facility, environmental control zones, HVAC.
	CO 4.7.1.3 T	Explain Classification and formulation of SVP & LVP's; processing, manufacturing, packaging requirements and Quality control.
	CO 4.7.1.4 T	Understand general requirements, formulation, types and evaluation of ophthalmic products, blood Products and surgical dressings.
	CO 4.7.1.5 P	Study of preparation of sterile formulations (SVP's & LVP's) and study of their quality parameters.
	CO 4.7.1.6 P	Understand basics of maintenance of sterile areas; study of preparation of blood products.
Medicinal chemistry -III	CO 4.7.3 .1T	Understand the general aspects of design of the drugs including the history of the antibiotics, anti-infective agents and antineoplastic agents.
	CO 4.7.3.2T	Classification & nomenclature of the antibiotics, anti-infective agents and antineoplastic agents on the basis of their chemistry.
	CO 4.7.3.3T	Illustrate the structure activity relationship (SAR) of the antibiotics, anti-infective agents and antineoplastic agents on the basis of their chemistry.
	CO 4.7.3.4T	Rephrase the mechanism of action, therapeutic uses, adverse effects and recent developments in the antibiotics, anti-infective agents and antineoplastic agents.
	CO 4.7.3.5P	Construct reaction mechanisms involved in synthesis of medicinally important compounds.
	CO 4.7.3.6P	Plan Synthesis, characterize and purify the medicinally important compounds.




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Pharmacology IV	CO 4.7.4 1T	Explain the Pharmacological actions, mechanisms of action, use, and adverse effects of drugs used to treat various infectious disease
	CO 4.7.4 2T	Describe the Pharmacological actions, mechanisms of action, use, and adverse effects of hormones and related drugs
	CO 4.7.4 3T	Describe the Pharmacological actions, mechanisms of action, use, and adverse effects of drug used for metabolic disorders
	CO 4.7.4 4T	Apply the knowledge of microbiology and pathophysiology in pharmacology of antibiotics
	CO 4.7.4 5P	Investigate the activity of Acetylcholine and histamine using suitable animal preparation by bioassay methods and demonstrate the computer simulations of experiments through simulated software program.
	CO 4.7.4 6P	Appraise and justify fixed dose drug combinations (FDC) for their rationality and irrationality
	CO 4.7.4 7P	Judge and justify some prescriptions for it's rationality and irrationality.
Pharmaceutical Analysis V	CO 4.7.2.1 T	Understand principle, instrumentation, and applications of Gas Chromatography
	CO 4.7.2.2 T	Understand principle, instrumentation and applications of High-Performance Liquid Chromatography
	CO 4.7.2.3 T	Discuss the Principle and instrumentation of FTIR
	CO 4.7.2.4 T	Interpret the functional groups form IR spectra by recognizing functional groups
	CO 4.7.2.5 T	Discuss principles and applications of SEM and TEM
	CO 4.7.2.6 T	Explain the working and applications of NIR and Raman Spectroscopy
	CO 4.7.2.1 P	Explain basic operation of UV Visible spectrophotometer
	CO 4.7.2.2 P	Apply UV Spectrophotometric simultaneous equation method estimation for two-component formulation analysis
	CO 4.7.2.3 P	Apply UV Spectrophotometric Q-analysis method estimation for two-component formulation analysis
	CO 4.7.2.4 P	Predict the functional groups using IR spectra



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Natural Drug Technology	COBP 4.7.5 T1	Study guidelines issued by WHO in relation with cultivation, collection, storage and good agricultural practices etc.
	CO BP 4.7.5 T2	Learn the concept of health & pathogenesis, treatment aspects of Alternative system of medicine; herbs used in cosmetic preparation & methods of their formulations.
	CO BP 4.7.5 T3	Understand and explain the applications of plant tissue culture for Secondary metabolite production and approaches and potentials of herbal new drug delivery systems.
	CO BP 4.7.5 T4	Explain various physical, chemical, spectroscopic means & methods used in structural elucidation of natural products. He/she should be able to interpret data generated from above techniques.
	CO BP 4.7.5 P1	Develop ability to handle various equipment's as per SOPs & learn various demonstrations prepare brief report for evaluation.
	CO BP 4.7.5 P2	Understand and learn to Evaluate marketed cosmetic & nutraceutical formulations
	CO BP 4.7.5 P3	Acquire the knowledge of methods of preparation of Ayurvedic dosage forms
Biopharmaceutics & Pharmacokinetics	COBP 4.7.6.1 T	Discuss the concept of biopharmaceutics and its applications in formulation development.
	COBP 4.7.6.2 T	Use plasma drug concentration-time data to calculate the pharmacokinetic parameters to describe the kinetics of drug absorption, distribution, metabolism, excretion, elimination.
	COBP 4.7.6.3 T	Study pharmacokinetic processes and their relevance in efficacy of dosage form.
	COBP 4.7.6.4 T	Learn the concepts of bioavailability and bioequivalence studies.
	COBP 4.7.6.5 T	Learn various compartmental models and non-compartmental analysis methods
	COBP 4.7.6.6 T	Understand concept and mechanisms of dissolution and in vitro in vivo correlation



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Pharm Jurisprudence	CO 4.7.7.1 T	Explain basic principles, purpose and dimensions, significance and relevance of pharmaceutical laws in India.
	CO 4.7.7.2 T	Identify potential fraud and abuse legal issues of narcotic & psychotropic substance.
	CO 4.7.7.3 T	Understand the regulatory system for safety and effectiveness of medicine and quality of product
	CO 4.7.7.4 T	Discuss the purpose, responsibilities, qualifications for membership and the make-up of the Board.
	CO 4.7.7.5 T	Demonstrate the knowledge about Patents, procedure for patent application and IPR.



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
COURSE OUTCOMES (COs)

B. PHARMACY

(AY:2020-21)

Final Yr B. Pharm Sem VIII (AY: 2020-21)		
Adv Drug Delivery System	CO 4.8.1.1 T	Discuss Fundamental Concept of Modified Drug Release and Pre-requisites of drug candidates, along with various approaches and classification. Discussion about polymers, classification, types, selection, applications.
	CO 4.8.1.2 T	Describe the formulation, merits, demerits, application and evaluation of different types of Novel Drug Delivery Systems.
	CO 4.8.1.3 T	Explain therapeutic aerosols, types, formulation aspects and quality control.
	CO 4.8.1.4 T	Understand of microencapsulation techniques, types, applications, evaluation of microspheres/microcapsules.
	CO 4.8.1.5 P	Study about types of polymers and their evaluation tests.
	CO 4.8.1.6 P	Study various forms of novel drug delivery forms and study of their quality evaluation parameters.
Cosmetic Science	CO 4.8.2.1 T&P	Illustrate Fundamentals and Scope of Cosmetic Science
	CO 4.8.2.2 T&P	Explain various cosmetic dosage forms and their manufacturing techniques
	CO 4.8.2.3 T&P	Recognize various factors to be considered in development of cosmetics and cosmeceuticals
	CO 4.8.2.4 T&P	Formulate various cosmetics and cosmeceuticals
	CO 4.8.2.5 T&P	Evaluate various cosmetics and cosmeceuticals for their quality and stability
	CO 4.8.2.6 T&P	Explain various equipment's used in formulation of various cosmetics products.
Pharmacology V incl Biostatistics	CO 4.8.5 1T	Discuss clinical pharmacology including adverse drug reactions, drug-drug interactions, patient compliance & counselling, therapeutic drug monitoring and clinical trials.
	CO 4.8.5 2T	Apply knowledge of patient compliance and counselling in instructing and counselling the patients.
	CO 4.8.5 3T	Apply the knowledge of clinical pharmacology to develop research thinking.
	CO 4.8.5 4T	Discuss organization, documentation and functioning in various phases of clinical trials




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	CO 4.8.5 5P	Discuss basics of biostatistics and carry out the statistical analysis of given experimental data using appropriate method(s).
	CO 4.8.5 6P	Investigate the activity of Acetylcholine and histamine using suitable animal preparation by bioassay methods
	CO 4.8.5 7P	Demonstrate the Computer simulations of experiments through simulated software program.
Pharmaceutical Analysis VI	CO 4.8.3.1 T	Understand principle, instrumentation, and applications of Nuclear Magnetic Resonance and ESR
	CO 4.8.3.2 T	Understand principle, instrumentation and applications of Mass spectrometry
	CO 4.8.3.3 T	Discuss the Principle and instrumentation Flow injection Analysis
	CO 4.8.3.4 T	Understand the principle and applications of Supercritical fluid chromatography
	CO 4.8.3.5 T	Discuss principles and applications of Ion Exchange Chromatography
	CO 4.8.3.6 T	Explain the working and applications of Flash Chromatography
	CO 4.8.3.1 P	Validation of UV Visible spectrophotometric method for analysis
	CO 4.8.3.2 P	Explain ICH guidelines and its importance
	CO 4.8.3.3 P	Discuss system suitability parameters and their importance
	CO 4.8.3.4 P	Interpret UV, IR, NMR, MS spectra of simple organic compounds for structure elucidation
Medicinal chemistry -IV	CO 4.8.4.1T	Understand the general aspects of design of the drugs, history of Antihistaminic agents and proton pump inhibitors, autacoids, NSAIDs, analgesics & antipyretics, Narcotic agents, steroids and steroidal drugs, hormones, insulin, oral anti-hyperglycemic drugs, diagnostic agents, and serotonergic agents.
	CO 4.8.4.2T	Classification & nomenclature of Antihistaminic agents and proton pump inhibitors, autacoids, NSAIDs, analgesics & antipyretics, Narcotic agents, steroids and steroidal drugs, hormones, insulin, oral anti-hyperglycemic drugs, diagnostic agents, and serotonergic agents.
	CO 4.8.4.3T	Illustrate the structure activity relationship (SAR) of Antihistaminic agents and proton pump inhibitors, autacoids, NSAIDs, analgesics & antipyretics, Narcotic agents, steroids and steroidal drugs, hormones, insulin, oral anti-



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		hyperglycemic drugs, diagnostic agents, and serotonergic agents.
	CO 4.8.4.4T	Rephrase the mechanism of action, therapeutic uses, adverse effects of Antihistaminic agents and proton pump inhibitors, autacoids, NSAIDs, analgesics & antipyretics, Narcotic agents, steroids and steroidal drugs, hormones, insulin, oral anti-hyperglycemic drugs, diagnostic agents, and serotonergic agents.
	CO 4.8.4.5P	Construct reaction mechanisms involved in synthesis of medicinally important compounds.
	CO 4.8.4.6P	Plan Synthesis, characterize and purify the medicinally important compounds.
Natural Product commerce IR	CO.4.8.6.1T	Understand & realize the significance of natural products in daily life
	CO.4.8.6.2T	Classify different segments in market, demand & supply position, export & import potential; position of Indian herbal drug industry in global contest; government organizations & policies for promotion; their regulation in India & other countries, various regulatory guidelines, ethical issues etc.
	CO.4.8.6.3 T	Realize the market potential of natural products & explore entrepreneurship skills to grab these opportunities.
	CO.4.8.6.4T	Understand & explain safe use of natural products, possible toxicities & interaction, toxicities in most venerable group (elderly patients), need & significance of Pharmacovigilance systems; WHO guidelines in this regard.
Quality Assurance Tech.	CO 4.8.7.1T	Describe the significance of quality in pharmaceutical industry and outline the concept of quality assurance.
	CO 4.8.7.2T	Summarize the concept of GMP, GLP, GDP, QBD, Pharmaceutical quality management system and quality risk management.
	CO 4.8.7.3T	Recognize the role of various regulatory agencies imparting quality standards.
	CO 4.8.7.4T	Discuss Calibration & Qualifications and appreciate the importance of effective documentation.
	CO 4.8.7.5T	Elaborate on the role of validation in assurance of quality in pharmaceutical industry.



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COURSE OUTCOMES (COs)

B. PHARMACY

(AY:2021-22)

FINAL YR B. PHARM SEM VII		
Instrumental Methods of Analysis	BP 701.1T	Understand principle, instrumentation and applications of UV Visible spectrophotometry.
	BP 701.2T	Understand principle, instrumentation and applications of Infrared spectroscopy
	BP 701.3T	Analyze the UV and IR data for identification of Unknown organic structure
	BP 701.4T	Understand principle, Instrumentation and applications of Gas chromatography
	BP 701.5T	Understand principle, Instrumentation and applications of High-performance liquid chromatography
	BP 701.6T	Understand principle and application of electrophoresis
	BP 701.1P	Describe basics of instrumental analysis in estimation of drug substance and drug product.
	BP 701.2P	Carry out separation and identification of mixture of compounds, estimation, and assay by different instrumental/ chromatographic techniques confidently.
Industrial Pharmacy II	BP702.1T	Discuss the process of pilot plant and scale up of pharmaceutical dosage forms
	BP702.2T	Understand the process of technology transfer from lab scale to commercial batch
	BP702.3T	Elaborate different Laws and Acts that regulate pharmaceutical industry
	BP702.4T	Understand the approval process and regulatory requirements for drug products
	BP702.5T	Describe Indian regulatory requirements and approval procedures for New Drugs
	BP702.6T	Understand the concept of Quality, Quality management systems and certifications
Pharmacy Practice	COBP703.1 T	Understand various drug distribution methods in a hospital
	COBP703.2 T	Appreciate the pharmacy stores management and inventory control
	COBP703.3 T	Apply the pharmacy practice for patient counseling in community pharmacy
	COBP703.4 T	Assess adverse drug reactions and identify drug related problems
	COBP703.5 T	Elaborate the concept of rational drug therapy


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Novel Drug Delivery System	COBP704.1T	Discuss Fundamental Concept of Modified Drug Release and Pre-requisites of drug candidates, along with various approaches and classification. Discuss about polymers, classification, types, selection, applications.
	COBP704.2	Understand various approaches for development of novel drug delivery system
	COBP704.3	Describe the, merits, demerits, application and evaluation of different types of Novel & Targeted Drug Delivery Systems.
	COBP704.4	Understand microencapsulation techniques, types, applications, evaluation of microspheres/microcapsules.
Practice School	COBP706PS.1	Learn various techniques of developing Herbal formulations
	COBP706PS.2	Implement various methods for standardization of Herbal Formulations
	COBP706PS.3	Illustrate different modern techniques of drug design to develop new drug like molecules.
	COBP706PS.4	Understand & apply the practical knowledge on modern analytical techniques that are useful in drug discovery process.
	COBP706PS.5	Apply knowledge about clinical pharmacology, pharmacy practice and community pharmacy
	COBP706PS.6	Understand the pre-clinical & clinical development process of drugs.
	COBP706PS.7	Understand pharma development guidelines and marketing principles and strategies.
	COBP706PS.8	Understand scientific writing and study of optimization tools.



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COURSE OUTCOMES (COs)

B. PHARMACY

(AY:2021-22)

FINAL YR B. PHARM SEM VIII		
Biostatistics and Research Methodology	COBP801.1T	Know the different statistical techniques to solve various pharmaceutical statistical problems
	COBP801.2T	Understand the concept of regression, probability and parametric test
	COBP801.3T	Learn the concept of research and designing the different methodology and graphs
	COBP801.4T	Understand the operation of M.S. Excel, SPSS, R and MINITAB®, DoE (Design of Experiment) and Online Statistical Software's for Industrial and Clinical trial approach
	COBP801.5T	Learn design and Analysis of experiments
Social Preventive Pharmacy	COBP802.1T	Understand the concepts and evaluation of public health
	COBP802.2T	Explain the principles on the prevention and control of communicable and non-communicable diseases.
	COBP802.3T	Understand National health programs its objectives functioning and outcomes
	COBP802.4T	Understand the community services in rural, urban and school health
	COBP802.5T	Understand the general measures and strategies to be followed in social and preventive pharmacy
Pharma Marketing Management	COBP803.1T	Explain the concepts of marketing and pharmaceutical marketing
	COBP803.2T	Learn the various techniques of Marketing and promotion
	COBP803.3T	Study the various pharmaceutical marketing channels
	COBP803.4T	Understand the importance and role of Pricing
Pharmaceutical Regulatory Science	COBP804.1T	Explain the process of drug discovery, development and generic product development
	COBP804.2T	Understand the regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals
	COBP804.3T	Explain the regulatory approval process and their registration in Indian and International markets
	COBP804.4T	Explain basic understanding of developing clinical trial protocols
	COBP804.5T	Learn the basic understanding the importance of orange book, Federal Register, Code of Federal Regulatory, and Purple book



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Pharmacovigilance	COBP805.1T	Discuss the importance of drug safety monitoring and the development of pharmacovigilance program
	COBP805.2T	Identify and manage the adverse drug reaction and its types
	COBP805.3T	Recognize various methods of drug and vaccine safety surveillance and communication in pharmacovigilance
	COBP805.4T	Understand international standards for classification of diseases and drugs
	COBP805.5T	Explain the methods to generate safety data during the phases of clinical trial and recognize the role of ICH and GCP guidelines
Quality Control and Standardization of Herbals	COBP806.1T	Study WHO guidelines for quality control of herbal drugs
	COBP806.1T	Explain Quality assurance in herbal drug industry
	COBP806.1T	Learn the regulatory approval process and their registration in Indian and international markets
	COBP806.1T	Understand EU and ICH guidelines for quality control of herbal drugs
Computer Aided Drug Design	COBP807ET.1T	Understand the design and discovery of lead molecules
	COBP807ET.2T	Classify the role of drug design tools for drug discovery process
	COBP807ET.3T	Understand and analyze concepts of QSAR and docking
	COBP807ET.4T	Analyze and apply various strategies to develop new drug like molecules.
	COBP807ET.5T	Use various molecular modeling software to design new drug molecule
Cosmetic Science	COBP809ET.1T	Understand the concepts of cosmetics, classification; anatomy of skin, hair, general excipients used in cosmetics.
	COBP809ET.2T	Illustrate the concept of formulation and building blocks of skin care products, hair care products and antiperspirants & deodorants
	COBP809ET.3T	Know the basics of sun protection, role of herbs in cosmetics and analytical cosmetics
	COBP809ET.4T	Evaluate principles of cosmetics
	COBP809ET.5T	Understand cosmetic problems associated with skin and hair



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Experimental Pharmacology	COBP810ET.1T	Understand the applications of various commonly used laboratory animals.
	COBP810ET.2T	Demonstrate the various screening methods used in preclinical research.
	COBP810ET.3T	Carry out different types of bioassays and screening methods confidently.
	COBP810ET.4T	Comprehend and demonstrate the importance of biostatistics and research methodology
	COBP810ET.5T	Execute the designed research hypothesis independently
Dietary Supplements and Nutraceuticals	COBP812ET.1T	Understand the need of supplements by the different group of people to maintain healthy life.
	COBP812ET.2T	Understand the outcome of deficiencies in dietary supplements.
	COBP812ET.3T	Recognize the components in dietary supplements and the application.
	COBP812ET.4T	Acquaint with the regulatory and commercial aspects of dietary supplements including health claims.




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COURSE OUTCOMES (COs) - PHARM D & PHARM D PB (AY 2020-21 & 2021-22)



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COURSE OUTCOMES (COs)**PHARM D****ACADEMIC YEAR 2020-21 & 2021-22**

Name of subject	CO No.	Course outcome
First Year Pharm. D		
Pharmaceutics.	CO1.2.1T	Discuss basic knowledge of the formulation aspects of different dosage forms
	CO1.2.2T	Illustrate different pharmaceutical calculation involved in formulation.
	CO1.2.3T	Discuss the formulation aspects of different types of dosage form
	CO1.2.4T	Explain importance of good formulation for effectiveness.
	CO1.2.5P	Formulate and dispense different kinds of formulations with calculations
	CO1.2.6P	Explain dose, the storage conditions and labelling information
Human Anatomy and Physiology	CO 1.1.1T	Outline the structure of cells, organs and location of cardiovascular, nervous, endocrine, reproductive & respiratory with the help of models
	CO 1.1.2T	Define the different anatomical terminologies such as parts, planes, positions and sections of the human body.
	CO 1.1.3T	Identify various types of tissues, bones like axial or appendicular, joints, muscles & types of movements
	CO 1.1.4T&P	Determine the different haematological tests like blood groups, bleeding time, clotting time, haemoglobin, red blood cell & white blood cell count of own blood samples.
	CO 1.1.5T	Appreciate working of different organs such as heart, lungs, brain, kidney, lymph organs and glands with haemostatic physiologic mechanism
	CO 1.1.6P	Apply the knowledge gained by the demonstration of different family planning devices, HCG urine pregnancy kits & sensory organs with the help of models & charts.
	CO 1.1.7P	Understand the different appliances used in haematological experiments such as hemocytometer, sphygmomanometer, haemoglobinometer.




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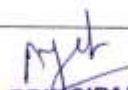
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Pharmaceutical Organic Chem	CO 1.4.1T	Outline of the behavior of organic compounds.
	CO 1.4.2T	Justify a reasonable mechanism for chemical reactions.
	CO 1.4.3T	Illustrate the orientation and IUPAC nomenclature of chemical compounds.
	CO 1.4.4T	Explain different reaction intermediate and their applications in reaction mechanism.
	CO 1.4.5P	Explain and understand the principal behind various qualitative tests and analyze the given unknown organic compound having different functional groups.
	CO 1.4.6P	Understand the principal and illustrate reaction mechanism and application of every experiment.
	CO 1.4.7P	Understand the use of stereo models.
Pharmaceutical Inorganic Chem	CO 1.5.1T	To be well acquainted with the principles of limit tests.
	CO 1.5.2T	To appreciate the importance of inorganic pharmaceuticals in preventing and curing the disease
	CO 1.5.3T	To have been introduced to a variety of inorganic drug classes.
	CO 1.5.4T	To know the analysis of the inorganic pharmaceuticals their applications
	CO 1.5.5P	Adjudge the level of specific impurities in the given inorganic compounds by performing different limit tests.
	CO 1.5.6P	To use different chemical methods to prepare and identify inorganic pharmaceuticals.
	CO 1.5.7P	To perform identification tests as per Indian Pharmacopoeia.
	CO 1.5.8P	To understand the principles and procedures of analysis of drugs and also regarding the application of inorganic pharmaceutical.




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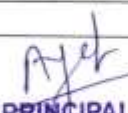
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Medicinal Biochemistry	CO 1.3.1T	Explain the concept of transport across cell membrane and energy rich compound
	CO 1.3.2T	Describe the properties, classification, kinetics, inhibitors, importance of enzymes in diagnosis of diseases and therapeutic uses
	CO 1.3.3T	Describe the metabolism of Protein and amino acids, Carbohydrates, lipids in physiological and pathological condition
	CO 1.3.4T	Study the genetic organization of mammalian genome, synthesis and metabolism of biomolecules such as proteins etc; and mechanism of DNA replication, mutation and repair.
	CO 1.3.5P	Discuss the importance of biomolecule test and immunochemical techniques in diagnosis of disease with the help of qualitative and quantitative analysis of biomolecules in body fluids
	CO 1.3.6P	Analyze blood creatinine, sugar, total cholesterol and action of salivary amylase.
	CO 1.3.7P	Understand kidney, liver, lipid profile test, electrolyte distribution in the body fluids. And immunochemical techniques
Remedial Biology	CO 1.6.1 T	Study of natural sources such as plant and animal and their origin.
	CO 1.6.2 T	Understand various naturally occurring drugs, its history and sources.
	CO 1.6.3 T	Classify the plants and animals with their distribution and characteristics .
	CO 1.6.4 T	Explain general organizations of mammals with study of frog, Pisces, Reptiles, Aves etc.
	CO 1.6.5 P	Study of root, stem, leaf modifications along with transverse sections of important parts of plants.
	CO 1.6.6 P	Apply skills for preparation of permanent slides and simple plant physiological experiments.




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COURSE OUTCOMES (COs)
PHARM D
ACADEMIC YEAR 2020-21 & 2021-22

Second Year Pharm. D		
Pharm. Microbiology	CO 2.2.1 T	Classify different microorganisms and relationship between them, study of their anatomy, physiology, relationship with each other. Study of their growth, isolation and identification techniques.
	CO 2.2.2 T	Study of methods used for sterilization & disinfection, equipment's involved, their applications.
	CO 2.2.3 T	Explain types of immunities, immune responses, components, vaccination, and its importance.
	CO 2.2.4 T	Study of Microbial assays, their principles, and applications. Study of diagnostic tests and techniques adopted therein.
	CO 2.2.5 T	Study of types of infectious diseases, their causative agents, etiology, pathophysiology, treatment, and management.
	CO 2.2.6 P	Describe through experimentation of growth of different microbes, their study and identification, counting techniques.
	CO 2.2.7 P	Study sterility testing and microbial assay methods.
Pathophysiology	CO 2.1.1 T	Explain the pathogenesis and morphology of reversible and irreversible cell injury
	CO 2.1.2 T	Illustrate events involved in acute and chronic inflammation
	CO 2.1.3 T	Recognize the biological significance of various hypersensitivity disorders and discuss the mechanisms involved in autoimmune diseases and allograft rejection
	CO 2.1.4 T	Discuss the etiopathogenesis of selected diseases
	CO 2.1.5 T	Describe the general biology of cancer, mechanism of shock and effects of radiation exposure
	CO 2.1.6 T	Identify the signs, symptoms and complications of diseases.
	CO 2.1.7 T	Apply disease specific diagnostic methods.



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Pharmacotherapeutics-I	CO 2.6.1T	Learn the pathophysiology and diagnosis of selected disease states.
	CO 2.6.2T	Distinguish between types of disease with help of differential diagnosis.
	CO 2.6.3T&P	Interpret diagnosis based on physical examination, laboratory investigation and diagnostics test
	CO 2.6.4T&P	Identification of the patient-specific parameters relevant in initiating drug therapy, and monitoring therapy (including alternatives, time-course of clinical and laboratory indices of therapeutic response and adverse effects).
	CO 2.6.5T&P	Learn and create individualized therapeutic drug therapy, its rationality with referencing latest guidelines and evidence.
	CO 2.6.6T&P	Counsel patients on devised therapeutics plan (lifestyle and drugs).
	CO 2.6.7T&P	Identify and manage the potential drug interaction in given drug regimen
Pharmacology-I	CO 2.4.1T	Understand the aspects of general pharmacology includes pharmacokinetics, pharmacodynamics and routes of administrations of drugs.
	CO 2.4.2T	Enlist the classes of the drugs acting on autonomic nervous system, cardiovascular system, central nervous, respiratory system, hormones, autocooids and their antagonists
	CO 2.4.3T	Discuss the pharmacological features of common and important drugs mentioned above.
	CO 2.4.4T	Explain the basic concept of drug toxicity, factors modifying drug effect and pre-clinical evaluations of drugs.
	CO 2.4.5T	Report adverse drug reactions, drug interactions precautions, contraindications of various drugs.
	CO 2.4.6P	Record the drug response curve (DRC), LD 50 & ED 50 of different drugs.
	CO 2.4.7P	Demonstrate effects of different analgesic, anti-convulsant, muscle relaxant drugs on animals using Ex-pharm software
	CO 2.4.8P	Learn the basics of experimental pharmacology including commonly used instruments & CPCSEA, OECD guidelines.



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Community Pharmacy	CO 2.5.1T	Define the roles and responsibilities of community pharmacist.
	CO 2.5.2T	Outline the layout and infrastructure requirements for community pharmacy.
	CO 2.5.3T	Recognize the need of inventory control and discuss the various methods.
	CO 2.5.4T	Interpret the knowledge of business and professional practice management skills in community pharmacies.
	CO 2.5.5T	Identify symptoms of minor ailments and provide appropriate medication.
	CO 2.5.6T	Employ strategies for raising awareness about health promotion.
	CO 2.5.7T	Explain the importance of general patient counselling and health screening services in community pharmacy
	CO 2.5.8T	Discuss the factors affecting medication adherence and exhibit professional ethics by promoting safe and appropriate medication use throughout society.
Pharmacognosy & Phytopharmaceuticals	CO 2.3.1T	Define Pharmacognosy and describe its evolution.
	CO 2.3.2T	Explain the classification of crude drugs and discuss their primary and secondary metabolites.
	CO 2.3.3T	Review various parameters related to cultivation, collection, processing and storage of crude drugs.
	CO 2.3.4T	Discuss the production, evaluation, uses and adulterants of crude drugs.
	CO 2.3.5T&P	Identify the market samples of drugs containing proteins, carbohydrates and lipids.
	CO 2.3.6P	Demonstrate skill of plant material sectioning, staining, mounting & focusing.
	CO 2.3.7P	Analyze the crude drugs by its morphological characteristics and study the anatomical characteristics.



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COURSE OUTCOMES (COs)

PHARM D

ACADEMIC YEAR 2020-21 & 2021-22

Third Year Pharm. D

Pharm Analysis	CO 3.2.1T	Enlist instrumental methods based on chromatography, spectrophotometry as well as electrometric methods used in pharmaceutical analysis.
	CO 3.2.2T	Discuss the fundamental principle and instrumentation of various analytical techniques mentioned above.
	CO 3.2.3T&P	Illustrate the use of instrumental methods mentioned above.
	CO 3.2.4T	Understand the basic concepts of quality assurance.
	CO 3.2.5T	Discuss theoretical aspects and applications of mass spectrometry, NMR, ESR, polarimetry and X-Ray Diffraction.
	CO 3.2.6P	Describe basics of instrumental analysis in estimation of drug substance and drug product.
	CO 3.2.7P	Carry out separation and identification of mixture of compounds, estimation, and assay by different instrumental/ chromatographic techniques confidently.
Med. Chemistry	CO 3.5.1T	Understand significance and establish relevance of medicinal chemistry with pharmaceutical sciences.
	CO 3.5.2T	Explain chemistry of drugs with respect to their biological activity.
	CO3.5.3T	Utilize the different modern techniques of drug design.
	CO 3.5.4T	Understand and apply the concept of prodrug.
	CO3.5.5P	Understand the principal and illustrate reaction mechanism and medicinal uses of various drugs and intermediates.
	CO3.5.6T&P	Explain significance of the pharmacokinetic parameters and its relationship with chemical structure.
	CO 3.5.7P	Carry out monograph analysis and assay procedure of various compounds.
Pharm Jurisprudence	CO3.4.1T	Summarize the Pharmaceutical legislation and their implication in the development and marketing.
	CO3.4.2T	Apply knowledge about Patents, procedure for patent application and IPR.
	CO3.4.3T	List the regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals.
	CO3.4.4T	Explain various Indian pharmaceutical acts, laws and schedule.



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Pharmacology-II	CO 3.1.1T	Enlist classes of drugs acting on blood and blood forming elements, kidney, chemotherapeutic agents used in various infectious diseases as well as cancer and immunomodulators.
	CO 3.1.2T	Discuss the pharmacological features of common and important drugs mentioned above.
	CO 3.1.3T	Illustrate use of various pharmacological and chemotherapeutic agents for treatment of blood disorders, microbial diseases, cancer and immunological disorders.
	CO 3.1.4T	Explain basic concepts in cell and molecular biology.
	CO 3.1.5T&P	Discuss principles of animal toxicology and bioassay
	CO 3.1.6P	Describe basics of experimental pharmacology.
	CO 3.1.7P	Carry out different types of bioassays and screening methods confidently.
P' therapeutics-II	CO 3.3.1T	Learn the pathophysiology and diagnosis of selected disease states.
	CO 3.3.2T	Distinguish between types of disease with help of differential diagnosis.
	CO 3.3.3T&P	Interpret diagnosis based on physical examination, laboratory investigation and diagnostics test
	CO 3.3.4T&P	Identify the patient-specific parameters relevant in initiating drug therapy, and monitoring therapy (including alternatives, time-course of clinical and laboratory indices of therapeutic response and adverse effects).
	CO 3.3.5T&P	Learn individualized therapeutic drug therapy, its rationality with referencing latest guidelines and evidence.
	CO 3.3.6P	Counsel patients on disease, drug administration, drug food interaction, possible side effects of drugs, and lifestyle modifications.
	CO3.3.7P	Identify and manage the potential drug interaction in a given drug regimen.



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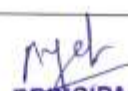
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Pharmaceutical Formulations	CO 3.6.1T	Explain the significance of formulation, preparation and evaluation of various pharmaceutical dosage forms
	CO 3.6.2T	Discuss formulation additives for various dosage forms
	CO3.6.3T	Explain suitable measures for stability of the dosage forms
	CO3.6.4T	Describe the manufacturing methods of solid, semisolid, parenteral and ophthalmic products
	CO3.6.5P&T	Design different dosage forms and cosmetics
	CO3.6.6P&T	Evaluate the prepared dosage forms with appropriate quality control tests




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COURSE OUTCOMES (COs)

PHARM D

ACADEMIC YEAR 2020-21 & 2021-22

Fourth Year Pharm. D & First Year Pharm. D PB

Pharmacotherapeutics-III	CO 4.1.1T	Learn the pathophysiology and diagnosis of selected disease states.
	CO 4.1.2T	Distinguish between types of disease with help of differential diagnosis.
	CO 4.1.3T	Interpret diagnosis based on physical examination, laboratory investigation and diagnostics test
	CO 4.1.4T	Identify the patient-specific parameters relevant in initiating drug therapy, and monitoring therapy (including alternatives, time-course of clinical and laboratory indices of therapeutic response and adverse effects).
	CO 4.1.5T & P	Learn individualized therapeutic drug therapy, its rationality with referencing latest guidelines and evidence.
	CO 4.1.6P	Counsel patients on disease, drug administration, drug food interaction, possible side effects of drugs, and lifestyle modifications.
	CO 4.1.7T&P	Identify and manage the potential drug interaction in a given drug regimen.
Clinical Toxicology	CO 4.6.1	Discuss general principles involved in the management of poisoning
	CO 4.6.2	State clinical symptoms of acute and chronic poisonings due to various substances like chemicals, heavy metals, drugs, plants, animals, insects, foods
	CO 4.6.3	Apply appropriate treatment plan for management of acute and chronic poisoning due to various substances.
	CO 4.6.4	Describe clinical symptoms and treatment of poisonings due to substances of abuse.
Clinical Pharmacy	CO 4.3.1T	Understand monitoring of drug therapy through medication chart review and clinical review
	CO 4.3.2T	Counsel the patients based on medication history interview
	CO 4.3.3T	Identify and resolve drug related problems
	CO 4.3.4P	Assess the adverse drug reactions and its consequences
	CO 4.3.5P	Interpret lab investigations of selected disease states
	CO 4.3.6P	Analyze, interpret and formulate drug information in response to queries



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Biostatistics & Res. Methodology	CO 4.4.1T	Design the research methodology including sample size and result interpretation for a research study
	CO 4.4.2T	Understand and compute the descriptive statistical measures
	CO 4.4.3T	Calculate the measures such as mean, mode, median, standard deviation, risk differences, relative risks and odds ratios.
	CO 4.4.4T	Formulate and compute the hypothesis and variance using parametric and non- parametric tests
	CO 4.5.5T	Understand the importance of computer applications in hospital, clinical and computer pharmacy
Biopharm & Pharmacokinetics	CO4.5.1T	Understand absorption, distribution, metabolism, bioactivation, excretion, bioavailability, bioequivalence, linear, non- linear pharmacokinetics, non- compartmental pharmacokinetics, parameters considered during multiple dosage regimens
	CO4.5.2T	Illustrate factors affecting absorption, distribution, metabolism, excretion, pharmacokinetic models, one and multi compartment models
	CO4.5.3T	Discuss drug transport mechanisms, various methods to study absorption, distribution, metabolism and excretion, causes of non-linearity, basics of non- compartmental analysis
	CO4.5.4T	Determine kinetic parameters of multiple dose I.V. and oral administrations, MRT of various dosage forms, Michaelis Menten and other parameters of non-linear pharmacokinetics
	CO4.5.5T&P	Judge BA BE study protocols for various drugs and dosage forms
	CO4.5.6P	Calculate Pharmacokinetic parameters such as C _{max} , t _{max} , t _{1/2} , AUC, AUMC, K _e , K _{el} , K _a , protein binding, Clearance, bioavailability and bioequivalence parameters.
	CO4.5.7P	Develop solid dispersions and inclusion complexation-based formulations of hydrophobic drugs to enhance their apparent solubility and dissolution rate



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Hospital Pharmacy	CO 4.2.1T	Explain hospital pharmacy services rendered by a pharmacist
	CO 4.2.2T	Design Hospital Drug Policies
	CO 4.2.3T	Discuss drug information with doctors, nurses and health care staff
	CO 4.2.4T	Understand concept of inventory control
	CO 4.2.5T	Learn different drug distribution methods
	CO 4.2.6P	Illustrate practice-based research methods
	CO 4.2.7P	Participate in drug information queries
Pharmacotherapeutics-I & II	CO 4.7.1T	Learn the pathophysiology and diagnosis of selected disease states.
	CO 4.7.2T	Distinguish between types of disease with help of differential diagnosis.
	CO 4.7.3T	Interpret diagnosis based on physical examination, laboratory investigation and diagnostics test
	CO 4.7.4T	Identify the patient-specific parameters relevant in initiating drug therapy, and monitoring therapy (including alternatives, time-course of clinical and laboratory indices of therapeutic response and adverse effects).
	CO 4.7.5T & P	Learn individualized therapeutic drug therapy, its rationality with referencing latest guidelines and evidences.
	CO 4.7.6T & P	Counsel patients on disease, drug administration, drug food interaction, possible side effects of drugs, and lifestyle modifications.
	CO 4.7.7P	Analyze different clinical cases and compare the given therapy against the standard recommended guidelines



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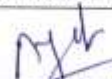
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COURSE OUTCOMES (COs)
PHARM D
ACADEMIC YEAR 2020-21 & 2021-22

Fifth Year Pharm. D & Second Year Pharm. D PB		
Clinical Research	CO 5.1.1T	Understand the pre-clinical & clinical development process of drugs.
	CO 5.1.2T	Discuss the regulatory requirements for drug approval in India, USA and Europe.
	CO 5.1.3T	Understand the ethical requirements & guidelines in clinical research.
	CO 5.1.4T	Discuss the roles and responsibilities of clinical trial personnel.
	CO 5.1.5T	Learn designing of clinical study documents, process of clinical data management and safety monitoring in clinical trials.
Pharmacoepidemiology and Pharmacoeconomics	CO 5.2.1T	Describe scope, advantages for studies in Pharmacoepidemiology & Pharmacoeconomics
	CO 5.2.2T	Explain the various research methodologies used to conduct research in Pharmacoepidemiology & Pharmacoeconomics
	CO 5.2.3T	Summarize the applications of Pharmacoepidemiology & Pharmacoeconomics
	CO 5.2.4T	Design Pharmacoepidemiological and Pharmacoeconomic studies using real time clinical scenarios.
Clinical Pharmacokinetics and TDM	CO 5.3.1T	Provide the knowledge about various concept of drug administration, routes of administration, pharmacokinetics studies and various drug drug interactions.
	CO 5.3.2T	Understand the concept of dosing, dosage form conversions and designing drug regimen.
	CO 5.3.3T	Promotes knowledge about advanced techniques for therapeutic drug monitoring of new drugs.
	CO 5.3.4T	Provide basic pharmacokinetics and genetics knowledge of prevention and treatment of various drugs




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Clerkship	CO 5.4.1	Correlate standard treatment guidelines with scientific literature
	CO 5.4.2	Detect, Interpret, and report medication errors, drug interactions and ADR
	CO 5.4.3	Counsel patients on disease, specific therapeutics plan and lifestyle modifications.
Project work	CO 5.5.1	Understand research gap, conduct literature review, and design research protocol
	CO 5.5.2	Develop data collection, documentation, analysis, and interpretation skills.
	CO 5.5.3	Develop communication and presentation skills.

COURSE OUTCOMES (COs)
PHARM D
ACADEMIC YEAR 2021-22

Sixth Year Pharm. D & Third Year Pharm. D PB		
Internship	CO 6.1.1	Provide patient care based upon sound therapeutic principles and evidence-based data to impact therapeutic outcomes.
	CO 6.1.2	Manage medication regimen to improve therapeutic outcomes of medication use.
	CO 6.1.3	Develop leadership qualities to function effectively as a member of the health care team
	CO 6.1.4	Communicate effectively with patients and the community.



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COURSE OUTCOMES (COs)- M PHARMACY PHARMACEUTICS (AY 2020-21 & 2021-22)



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COURSE OUTCOMES (COs)
M. Pharm (Pharmaceutics)
ACADEMIC YEAR 2020-21 & 2021-22

Name of subject	CO No	Course outcome
F Y M. Pharm – Sem I (Pharmaceutics)		
Regulatory Affairs	COMP104.1 T	Discuss the concepts of innovator and generic drugs in drug development process, drug product performance and principles of regulatory guidance's and guidelines for filing and approval process.
	COMP104.2 T	Apply the principles of regulatory affairs in drug development process, non-clinical drug development and global scenario of submission of IND, NDA,ANDA.
	COMP104.3 T	Analyze the post approval regulatory requirements for actives and drug products, Preparation of Dossiers and their submission according to regulatory requirements of EU, Australia, UK and ROW countries etc. and the documents required for submission in Common Technical Document / eCTD formats
	COMP104.4 T	Analyze the clinical trials requirements for approvals for conducting trials and the process of monitoring in clinical trials.
Drug Delivery System	COMP102.1T	understand various types of drug delivery system and basic formulation requirement for these drug delivery systems.
	COMP102.2T	explain the barriers for drug delivery to different routes and suggest different approaches to overcome these barriers.
	COMP102.3T	identify a suitable drug delivery system based on the physicochemical characteristics of drug and select a suitable polymer for formulation of the drug delivery system
	COMP102.4T	design a suitable drug delivery system and formulate and evaluate the selected system with different approaches.



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Modern Pharmaceutics	COMPH103.1 T	Explain elements of preformulation studies and apply the knowledge of Preformulation for formulation development
	COMPH103.2 T	Illustrate optimization techniques in pharmaceutical formulation and processing
	COMPH103.3 T	Recognize Pharmaceutical Validation, policies of current good manufacturing practices and concept of industrial Management
	COMPH103.4 T	Formulate and evaluate various pharmaceutical dosage forms
	COMPH103.5 T	Describe Stability Testing, sterilization process & packaging of dosage forms
Modern Pharma Anal Techniques	MPAT 101.1 T	Understand and apply principle, instrumentation and applications of UV Visible spectrophotometry
	MPAT 101.2 T	Understand and apply principle, instrumentation and applications of Infrared Spectroscopy
	MPAT 101.3 T	Discuss the Principle, instrumentation and applications of spectrofluorimetry
	MPAT 101.4 T	Understand the principle and applications of flame emission spectroscopy
	MPAT 101.5 T	Understand and apply principles, instrumentation and applications of Mass spectrometry
	MPAT 101.6 T	Understand and apply principles, instrumentation and applications of Nuclear Magnetic Resonance spectroscopy
	MPAT 101.7 T	Understand and apply principles, instrumentation and applications of chromatographic techniques
Pharmaceutics I Practical	COMPH105.1P	analyze actives and their formulations by different spectroscopic techniques
	COMPH105.2P	design, prepare and evaluate various drug delivery systems using suitable formulation approach
	COMPH105.3P	perform preformulation studies for development of various dosage forms
	COMPH105.4P	perform the in vitro dissolution and diffusion tests and analyze the data using statistical tools
	COMPH105.5P	Analyze the effect of different formulation variables on the performance of formulation
Seminar/ Assignment	COMPH106.1	Analyze appropriate information related to the topic of the presentation
	COMPH106.2	Develop oral and written communication skills



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COURSE OUTCOMES (COs)
M. Pharm (Pharmaceutics)
ACADEMIC YEAR 2020-21 & 2021-22

F Y M. Pharm – Sem II (Pharmaceutics)		
Molecular Pharmaceutics	COMP201.1 T	Explain various approaches for development of novel drug delivery systems
	COMP201.2 T	Describe criteria for selection of drugs and polymers for the development of NTDS
	COMP201.3 T	Formulate various novel drug delivery systems
	COMP201.4 T	Evaluate various novel drug delivery systems
	COMP201.5 T	Recognize concept of Biodistribution and Pharmacokinetics
Advanced Biopharmaceutics & Pharmacokinetics	COMP202.1 T	Understand the basic concepts of absorption, distribution, metabolism, excretion, bioavailability, bioequivalence, linear, non-linear pharmacokinetics
	COMP202.2 T	Illustrate factors affecting absorption, permeation, various methods to study absorption
	COMP202.3 T	Describe theories of dissolution, compendial & alternative methods of dissolution, criteria for meeting dissolution requirements, comparison of dissolution profiles
	COMP202.4 T	Analyze one and multi-compartment models, causes of non-linearity, Michaelis Menten and other non-linear parameters, pharmacokinetic drug-drug interactions, BA BE study protocols and designs for various drugs and dosage forms
	COMP202.5 T	Evaluate pharmacokinetic parameters of modified & targeted release dosage forms, and biotechnology-based products
Computer Aided Drug Development	COMP203.1T	Understand history of computers in pharmaceutical research and development the concept of computational modeling of drug disposition
	COMP203.2T	Illustrate the applications of computer in preclinical development, robotics, computational fluid dynamics and pharmaceutical automation process
	COMP203.3T	Apply the approaches of optimization techniques in pharmaceutical formulation
	COMP203.4T	Predict the market analysis of pharma products and clinical data management using software



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Cosmetic & Cosmeceuticals	COMPH 204.1T	Describe the regulatory provisions related to the import and manufacture of cosmetics.
	COMPH 204.2T	Illustrate formulation building blocks and various problems related to the skin and hair.
	COMPH 204.3T	Understand the techniques and science to develop cosmetics and cosmeceuticals
	COMPH 204.4T	Evaluate scientific knowledge to develop cosmetics and cosmeceuticals with desired safety, stability, and efficacy
	COMPH 204.5T	Develop herbal cosmetics using different ingredients and knowledge of guidelines
Pharmaceutics Practical II	COMPH205.1P	Design various types of controlled oral, transdermal and mucosal drug delivery systems and cosmetic formulations
	COMPH205.2P	Evaluate in vitro and in vivo performance of various developed drug delivery systems using suitable methods
	COMPH205.3P	Understanding the concepts of QBD, computational modeling and simulations of Pharmacokinetic processes
	COMPH205.4P	Predict pharmaceutical factors affecting drug release kinetics
	COMPH 205.5P	Develop various Herbal Cosmetics
Seminar/ Assignment	COMPH206.1	Analyze appropriate information related to the topic of the presentation
	COMPH206.2	Develop oral and written communication skills



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COURSE OUTCOMES (COs)
M. Pharm (Pharmaceutics)
ACADEMIC YEAR 2020-21 & 2021-22

S Y M. Pharm – Sem III (Pharmaceutics)		
RM & Biostatistics	COMPH 301.1 T	Recognize the scope, objectives, value and requirements of research
	COMPH 301.2 T	Analyze the data in proper statistics manner.
	COMPH 301.3 T	Apply regression analysis and ANOVA to research data obtained.
	COMPH 301.4 T	Understand the guidelines, importance and functions of ethics committees in medical research
	COMPH 301.5 T	Summarize the guidelines for the maintenance of laboratory animals
	COMPH 301.6 T	Understand the genesis of bioethics with special reference to Helsinki declaration
Journal club	COMPH 302.1	Identify the research paper relevant to the research project
	COMPH 302.2	Interpret the selected research paper
	COMPH 302.3	Develop the presentation and Communication skill
Proposal Presentation	COMPH303.1	Perform systematic literature survey
	COMPH303.2	Design the research project
	COMPH303.3	Improve the presentation and Communication skill
	COMPH303.4	Defend the research aim and objectives
Research work	COMPH304.1	Apply appropriate methods, procedures, and resources to perform research work
	COMPH304.2	Develop critical thinking skills and problem-solving attitude
	COMPH304.3	Design the research project
	COMPH304.4	Develop the scientific writing skills



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COURSE OUTCOMES (COs)
M. Pharm (Pharmaceutics)
ACADEMIC YEAR 2020-21 & 2021-22

S Y M. Pharm – Sem IV (Pharmaceutics)		
Journal club	COMPH 401.1	Identify the research paper relevant to the research project
	COMPH 401.2	Interpret the selected research paper
	COMPH 401.3	Develop the presentation and Communication skill
Proposal Presentation	COMPH402.1	Perform systematic literature survey
	COMPH402.2	Design the research project
	COMPH402.3	Improve the presentation and Communication skill
	COMPH402.4	Defend the research aim and objectives
Research work	COMPH403.1	Apply appropriate methods, procedures, and resources to perform research work
	COMPH403.2	Develop critical thinking skills and problem-solving attitude
	COMPH403.3	Design the research project
	COMPH403.4	Develop the scientific writing skills




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COURSE OUTCOMES (COs)- M PHARMACY PQA (AY 2020-21 & 2021-22)



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COURSE OUTCOMES (COs)
M. Pharm (Pharmaceutical Quality Assurance)
ACADEMIC YEAR 2020-21 & 2021-22

Name of subject	CO No	Course outcome
F Y M. Pharm – Sem I (Pharmaceutical Quality Assurance)		
Product Devt and Tech Transfer	COMQA 104.1T	Discuss principles and various guidelines involved in Drug discovery and development
	COMQA 104.2T	Explain concept and details of pre-formulation studies, solubility and stability
	COMQA 104.3T	Discuss concept, significance, design of pilot plant scale up with large scale manufacturing techniques
	COMQA 104.4T	Evaluate packaging requirements, pharmaceutical packaging materials quality control test
	COMQA 104.5T	Explain development of technology by R & D, Technology transfer from R & D to production along with documents involved
Quality Control and Quality Assurance	COMQA103.1T	Understand concept, evolution and scope of QA, QC, GMP, GLP including ICH and CPCSEA
	COMQA103.2T	Discuss eGMP guidelines according to schedule M, USFDA, Pharmaceutical Inspection Convention, WHO and EMEA
	COMQA103.3T	Explain analysis of raw materials, packaging materials including IPQC and finished product testing as per Indian, US and British pharmacopoeias.
	COMQA103.4T	Illustrate documentation in pharmaceutical industry
	COMQA103.5T	Appraise the elements of manufacturing operations and controls
Quality Management System	COMQA-102T 1	Explain concept about various Quality management principles & systems utilized in the manufacturing industry.
	COMQA-102T 2	Determine the Quality evaluation in the pharmaceutical industries.
	COMQA-102T 3	Explain stability testing of drug & drug substances.
	COMQA-102T 4	Discuss statistical approaches for quality.



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Modern Pharma Anal Techniques	MPAT 101.1 T	Understand and apply principle, instrumentation and applications of UV Visible spectrophotometry
	MPAT 101.2 T	Understand and apply principle, instrumentation and applications of Infrared Spectroscopy
	MPAT 101.3 T	Discuss the Principle, instrumentation and applications of spectrofluorimetry
	MPAT 101.4 T	Understand the principle and applications of flame emission spectroscopy
	MPAT 101.5 T	Understand and apply principles, instrumentation and applications of Mass spectrometry
	MPAT 101.6 T	Understand and apply principles, instrumentation and applications of Nuclear Magnetic Resonance spectroscopy
	MPAT 101.7 T	Understand and apply principles, instrumentation and applications of chromatographic techniques
Quality Assurance Practical -I	COMQA 105.1P	Carry out estimation of drug substance and formulation using various analytical techniques
	COMQA 105.2P	Develop skill to perform in- process and finished product quality control tests confidently
	COMQA 105.3P	Describe pre-formulation studies and stability study protocols
	COMQA-105.4P	Understand basic concepts of quality assurance
Seminar/ Assignment	COMQA106.1	Analyze appropriate information related to the topic of the presentation
	COMQA106.2	Develop oral and written communication skills




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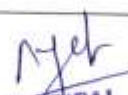
COURSE OUTCOMES (COs)

M. Pharm (Pharmaceutical Quality Assurance)

ACADEMIC YEAR 2020-21 & 2021-22

F Y M. Pharm – Sem II (Pharmaceutical Quality Assurance)		
Pharmaceutical Validation	COMQA 202.1 T	Understand and apply concept of validation and calibration
	COMQA 202.2 T	Understand and apply concepts of qualification for manufacturing equipment
	COMQA 202.3 T	Discuss the Principles and guidelines for cleaning validation
	COMQA 202.4 T	Understand and apply qualification of laboratory equipment
	COMQA 202.5 T	Understand and apply principles of Intellectual Property
	COMQA 202.6 T	Understand and apply principles and process of process validation
Audits and Regulatory Compliance	COMQA203.1 T	Understand the importance of auditing
	COMQA203.2 T	Illustrate the methodology of auditing
	COMQA203.3 T	Acquire knowledge to carry out the audit process
	COMQA203.4 T	Discuss how to prepare an audit report
	COMQA203.5 T	Develop ability to prepare the check list for auditing
Pharmaceutical Manufacturing Technology	COMQA204.1 T	Understand the common practice in the pharmaceutical industry developments, plant layout and production planning
	COMQA204.2 T	Explain the principles and practices of aseptic process technology, non-sterile manufacturing technology and packaging technology.
	COMQA204.3 T	Understand the principles and implementation of Quality by design (QbD) and process analytical technology (PAT) in pharmaceutical manufacturing
	COMQA204.4 T	Discuss the FDA initiative on process analytical technology and how PAT act as a driving force for improving quality and reducing costs




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


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Hazard & Safety Management	COMQA 201.1 T	Understand the Multidisciplinary nature of environmental studies and concept of ecosystem.
	COMQA 201.2 T	Explain various types of hazards viz. chemical, fire, air, water including methods to prevent and control them.
	COMQA 201.3 T	Describe the air maintenance in industry for sterile area and non-sterile area along with Air handling system and HVAC.
	COMQA 201.4 T	Appraise the elements of safety program and safety management.
	COMQA 201.5 T	State ICH guidelines for risk assessment and risk management methods and Tools to provide safe industrial atmosphere.
	COMQA 201.6 T	Discuss Factory act and rules and role of emergency services.
	COMQA 201.7 T	Outline physicochemical measurements of effluents, BOD, COD and Effluent treatment procedure.
Quality Assurance Practical –II	COMQA 205.1P	Carry out validation and qualification confidently
	COMQA 205.2P	Perform analysis of active pharmaceuticals and contaminants.
	COMQA 205.3P	Illustrate the concepts of QbD, PAT
	COMQA 205.4P	Design plant layout including various checklists
Seminar/ Assignment	COMQA206.1	Analyze appropriate information related to the topic of the presentation
	COMQA206.2	Develop oral and written communication skills




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COURSE OUTCOMES (COs)
M. Pharm (Pharmaceutical Quality Assurance)
ACADEMIC YEAR 2021-22

S Y M. Pharm – Sem III (Pharmaceutical Quality Assurance)		
RM & Biostatistics	COMQA 301.1 T	Recognize the scope, objectives, value and requirements of research
	COMQA 301.2 T	Analyze the data in proper statistics manner.
	COMQA 301.3 T	Apply regression analysis and ANOVA to research data obtained.
	COMQA 301.4 T	Understand the guidelines, importance and functions of ethics committees in medical research
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Journal club	COMQA 302.1	Identify the research paper relevant to the research project
	COMQA 302.2	Interpret the selected research paper
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Proposal Presentation	COMQA303.1	Perform systematic literature survey
	COMQA303.2	Design the research project
	COMQA303.3	Improve the presentation and Communication skill
	COMQA303.4	Defend the research aim and objectives
Research work	COMQA304.1	Apply appropriate methods, procedures, and resources to perform research work
	COMQA304.2	Develop critical thinking skills and problem-solving attitude
	COMQA304.3	Design the research project
	COMQA304.4	Develop the scientific writing skills



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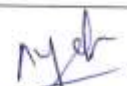
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COURSE OUTCOMES (COs)
M. Pharm (Pharmaceutical Quality Assurance)
ACADEMIC YEAR 2021-22

S Y M. Pharm – Sem IV (Pharmaceutical Quality Assurance)		
Journal club	COMQA 401.1	Identify the research paper relevant to the research project
	COMQA 401.2	Interpret the selected research paper
	COMQA 401.3	Develop the presentation and Communication skill
Proposal Presentation	COMQA403.1	Perform systematic literature survey
	COMQA403.2	Design the research project
	COMQA403.3	Improve the presentation and Communication skill
	COMQA403.4	Defend the research aim and objectives
Research work	COMQA403.1	Apply appropriate methods, procedures, and resources to perform research work
	COMQA403.2	Develop critical thinking skills and problem-solving attitude
	COMQA403.3	Design the research project
	COMQA403.4	Develop the scientific writing skills




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COURSE OUTCOMES (COs) & PROGRAM OUTCOMES (POs) ATTAINMENT

PHARM D & PHARM D PB (AY 2020-21)



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COURSE OUTCOMES ATTAINMENT
PHARM D PROGRAM (ACADEMIC YEAR 2020-21)
First Year Pharm. D

Name of subject	CO No.	CO Attainment
Pharmaceutics.	CO1.2.1T	2.56
	CO1.2.2T	2.08
	CO1.2.3T	2.44
	CO1.2.4T	2.52
	CO1.2.5P	2.4
	CO1.2.6P	2.4
Average CO Attainment		2.40
Human Anatomy and Physiology	CO 1.1.1T	2.76
	CO 1.1.2T	2.4
	CO 1.1.3T	2.88
	CO 1.1.4T&P	3
	CO 1.1.5T	2.76
	CO 1.1.6P	3
	CO 1.1.7P	3
Average CO Attainment		2.83
Pharmaceutical organic chem		3
	CO 1.4.2T	3
	CO 1.4.3T	2.8
	CO1.4.4T	3
	CO 1.4.5P	3
	CO1.4.6P	2.8
	CO1.4.7P	2.8
Average CO Attainment		2.91
Pharmaceutical Inorganic chem	CO1.5.1T	3
	CO1.5.2T	3
	CO1.5.3T	3
	CO1.5.4T	3
	CO1.5.5P	2.92
	CO1.5.6P	3
	CO1.5.7P	3
	CO1.5.8P	2.76
Average CO Attainment		2.96

Name of subject	CO No.	CO Attainment
Medicinal Biochemistry	CO 1.3.1T	3
	CO 1.3.2T	3
	CO 1.3.3T	3
	CO 1.3.4T	0
	CO 1.3.5P	3
	CO 1.3.6P	3
	CO 1.3.7P	3
	Average CO Attainment	
Remedial Biology	CO 1.6.1 T	2.76
	CO 1.6.2 T	2.76
	CO 1.6.3 T	2.84
	CO 1.6.4 T	2.28
	CO 1.6.5 P	2.32
	CO 1.6.6 P	1.72
Average CO Attainment		2.45


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**COURSE OUTCOMES ATTAINMENT
PHARM D PROGRAM (ACADEMIC YEAR 2020-21)
SECOND YEAR PHARM. D**

Name of subject	CO No.	CO Attainment
Pharm. Microbiology	CO 2.2.1 T	2.76
	CO 2.2.2 T	2.6
	CO 2.2.3 T	2.52
	CO 2.2.4 T	3
	CO 2.2.5 T	3
	CO 2.2.6 P	2.16
	CO 2.2.7 P	3
Average CO Attainment		2.72
Pathophysiology	CO 2.1.1 T	1.88
	CO 2.1.2 T	1.88
	CO 2.1.3 T	1.8
	CO 2.1.4 T	1.8
	CO 2.1.5 T	1.88
	CO 2.1.6 T	1.76
	CO 2.1.7 T	1.8
Average CO Attainment		1.83
Pharmacotherapeutics-I	CO 2.6.1T	2.76
	CO 2.6.2T	2.76
	CO 2.6.3T&P	2.88
	CO 2.6.4T&P	2.88
	CO 2.6.5T&P	2.88
	CO 2.6.6T&P	3
	CO 2.6.7T&P	3
Average CO Attainment		2.88

Name of subject	CO No.	CO Attainment
Pharmacology-I	CO 2.4.1T	2.52
	CO 2.4.2T	2.88
	CO 2.4.3T	2.88
	CO 2.4.4T	2.76
	CO 2.4.5T	2.52
	CO 2.4.6P	3
	CO 2.4.7P	2.4
	CO 2.4.8P	3
Average CO Attainment		2.75
Community Pharmacy	CO 2.5.1T	2.08
	CO 2.5.2T	2.32
	CO 2.5.3T	1.96
	CO 2.5.4T	1.96
	CO 2.5.5T	1.88
	CO 2.5.6T	1.88
	CO 2.5.7T	2.28
	CO 2.5.8T	1.88
Average CO Attainment		2.03
Pharmacognosy & Phytopharmaceuticals	CO 2.3.1T	2.44
	CO 2.3.2T	2.44
	CO 2.3.3T	2.44
	CO 2.3.4T	2.44
	CO 2.3.5T&P	2.72
	CO 2.3.6P	2.84
	CO 2.3.7P	2.84
Average CO Attainment		2.59





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**COURSE OUTCOMES ATTAINMENT
 PHARM D PROGRAM (ACADEMIC YEAR 2020-21)**

THIRD YEAR PHARM. D			
Name of subject	CO No.	CO Attainment	Average CO Attainment
Pharmaceutical Analysis	CO 3.2.1T	2.44	2.64
	CO 3.2.2T	2.44	
	CO 3.2.3T&P	2.72	
	CO 3.2.4T	2.44	
	CO 3.2.5T	2.44	
	CO 3.2.6P	3	
	CO 3.2.7P	3	
Medicinal Chemistry	CO 3.5.1T	2.92	2.95
	CO 3.5.2T	2.92	
	CO3.5.3T	2.92	
	CO 3.5.4T	2.92	
	CO3.5.5P	3	
	CO3.5.6T&P	3	
	CO 3.5.7P	3	
Pharm Jurisprudence	CO3.4.1T	3	3.00
	CO3.4.2T	3	
	CO3.4.3T	3	
	CO3.4.4T	3	
Pharmacology-II	CO 3.1.1T	2.68	2.67
	CO 3.1.2T	2.92	
	CO 3.1.3T	2.48	
	CO 3.1.4T	3	
	CO 3.1.5T&P	2.76	
	CO 3.1.6P	2.52	
	CO 3.1.7P	2.32	
Pharmaco therapeutics-II	CO 3.3.1T	2.92	2.96
	CO 3.3.2T	2.92	
	CO 3.3.3T&P	2.96	
	CO 3.3.4T&P	2.96	
	CO 3.3.5T&P	2.96	
	CO 3.3.6P	3	
	CO3.3.7P	3	
Pharmaceutical Formulations	CO 3.6.1T	2.96	2.96
	CO 3.6.2T	2.96	
	CO3.6.3T	2.96	
	CO3.6.4T	2.96	
	CO3.6.5P&T	2.96	
	CO3.6.6P&T	2.96	

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COURSE OUTCOMES ATTAINMENT
PHARM D PROGRAM (ACADEMIC YEAR 2020-21)
FOURTH YEAR PHARM. D

Name of subject	CO No.	CO Attainment	Average CO Attainment
P ^r therapeutics-III	CO 4.1.1T	1.64	1.67
	CO 4.1.2T	1.64	
	CO 4.1.3T	1.56	
	CO 4.1.4T	1.56	
	CO 4.1.5T & P	1.7	
	CO 4.1.6P	1.88	
	CO 4.1.7T&P	1.68	
Clin. Toxicology	CO 4.6.1	1.96	1.85
	CO 4.6.2	1.88	
	CO 4.6.3	1.84	
	CO 4.6.4	1.72	
Clinical Pharmacy	CO 4.3.1T	2.84	2.75
	CO 4.3.2T	2.76	
	CO 4.3.3T	2.76	
	CO 4.3.4P	2.64	
	CO 4.3.5P	2.52	
	CO 4.3.6P	3	
Biostatistics & Res. Methodology	CO 4.4.1T	1.88	2.19
	CO 4.4.2T	2.28	
	CO 4.4.3T	2.12	
	CO 4.4.4T	2.23	
	CO 4.5.5T	2.44	
Biopharm & Pharmacokinetics	CO4.5.1T	1.44	1.70
	CO4.5.2T	1.44	
	CO4.5.3T	1.44	
	CO4.5.4T	0.96	
	CO4.5.5T&P	1.44	
	CO4.5.6P	2.68	
Hospital Pharm	CO 4.2.1T	3	2.98
	CO 4.2.2T	3	
	CO 4.2.3T	3	
	CO 4.2.4T	2.88	
	CO 4.2.5T	3	
	CO 4.2.6P	3	
	CO 4.2.7P	3	
Pharmacotherapeutics-I & II	CO 4.7.1T	2.76	2.88
	CO 4.7.2T	2.76	
	CO 4.7.3T	2.88	
	CO 4.7.4T	2.88	
	CO 4.7.5T & P	2.88	
	CO 4.7.6T & P	3	
	CO 4.7.7P	3	


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COURSE OUTCOMES ATTAINMENT
PHARM D PROGRAM (ACADEMIC YEAR 2020-21)
FIFTH YEAR PHARM. D

Name of subject	CO No.	CO Attainment	Average CO Attainment
Clinical Research	CO 5.1.1T	3	3.00
	CO 5.1.2T	3	
	CO 5.1.3T	3	
	CO 5.1.4T	3	
	CO 5.1.5T	3	
Pharmacoepidemiology and Pharmacoeconomics	CO 5.2.1T	2.76	2.82
	CO 5.2.2T	2.76	
	CO 5.2.3T	2.88	
	CO 5.2.4T	2.88	
Clinical Pharmacokinetics and TDM	CO 5.3.1T	2.76	2.76
	CO 5.3.2T	2.76	
	CO 5.3.3T	2.76	
	CO 5.3.4T	2.76	
Clerkship	CO 5.4.1	1.9	1.9
	CO 5.4.2	1.9	
	CO 5.4.3	1.9	
Project work	CO 5.5.1	2.55	2.32
	CO 5.5.2	2.55	
	CO 5.5.3	1.85	

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PROGRAM OUTCOMES (COs) ATTAINMENT- PHARM D & PHARM D PB (AY 2020-21)



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PROGRAM OUTCOMES (PO) ATTAINMENT
PHARM. D. & PHARM. D. PB
ACADEMIC YEAR 2020-21

Name of subject	PO Attainment										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
First Year Pharm. D											
Pharmaceutics.	2.40	2.39	2.39	1.62	1.82	2.40	1.03	2.42	2.45	2.40	2.46
Human Anatomy and Physiology	3	3	3	2	0.6	2.57	2	3	2.36	-	3
Pharmaceutical organic chem	2.91	2.87	2.93	2.88	2.9	2.96	2.9	2.93	2.93	2.92	2.91
Pharmaceutical Inorganic chem	2.59	0	2.59	2.74	2.69	2.61	2.75	2.64	2.68		2.64
Medicinal Biochemistry	2.57	2.57	3	3	1.33	2.67	2.57	2.73	2.14	-	2.63
Remedial Biology	2.45	2.27	2.27	2.34	2.45	2.45	2.45	2.49	2.45	2.44	2.45
Second Year Pharm. D											
Pharm. Microbiology	2.74	2.77	2.72	1.31	-	1.87	2.15	2.4	3	2.64	2.61
Pathophysiology	1.83	1.82	1.82	1.61	1.79	1.54	2.01	1.82	1.33	2.4	1.82
Pharmacotherapeutics-I	2.88	2.89	2.88	2.94	2.93	2.3	2.38	2.93	2.22	2.88	2.89
Pharmacology-I	2.45	2.66	2.44	2.88	2.96	2.86	2.84	2.86	2.85	-	2.82
Community Pharmacy	1.87	1.81	1.87	1.99	1.58	1.63	1.48	1.63	1.47	-	1.7
Pharmacognosy & Phytopharmaceuticals	2.59	2.61	2.59	2.73	2.69	2.61	2.75	2.64	2.68	-	2.64
Third Year Pharm. D											
Pharm Analysis	2.64	2.75	2.79	2.66	2.44	-	3	-	2.5	-	2.69
Med. Chemistry	2.95	2.95	2.95	2.95	2.94	2.94	2.94	2.97	2.95	2.92	2.94
Pharm Jurisprudence	3	3	3	3	3	3	3	3	3	-	3
Pharmacology-II	2.67	2.58	2.56	2.51	-	2.57	2.53	2.58	2.51	-	2.62
P' therapeutics-II	2.96	2.96	2.96	2.98	2.98	2.97	2.98	2.98	2.98	2.96	2.96
P Formulations	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96



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PROGRAM OUTCOMES (PO) ATTAINMENT
PHARM. D. & PHARM. D. PB
ACADEMIC YEAR 2020-21

Name of subject	PO Attainment										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
Fourth Year Pharm. D & First Year Pharm. D PB											
Clin. Toxicology	1.85	1.83	1.85	0.61	-	1.42	0.92	1.85	-	-	1.87
P' therapeutics-III	1.67	1.67	1.67	1.71	1.7	1.36	1.41	1.7	1.32	1.63	1.67
Biopharmaceutics & Pharmacokin	1.7	1.8	1.86	1.44	2.48	1.47	0.96	1.56	1.24	-	1.71
Clinical Pharmacy	2.24	2.79	2.66	2.22	1.46	2.59	1.71	2.81	2.86	-	2.63
Biostatistics & Res. Methodology	1.63	3.29	2.99	2.36	2.64	2.05	1.89	0.97	1.43	-	2.74
Hospital Pharm	3	3	3	2.7	1.8	3	2.14	3	3	-	3
Pharmacotherapeutics-I & II	2.24	2.65	2.54	2.32	2.21	2.18	1.89	2.32	1.59	-	2.42
Fifth Year Pharm. D & Second Year Pharm. D PB											
Clinical Research	3	3	3	3	3	3	3	3	3	-	3
Pharmacoeconomics and Pharmacoepidemiology	2.24	2.25	2.24	2.24	2.23	2.23	2.23	2.23	2.23	-	2.24
Clinical Pharmacokinetics and TDM	2.76	2.76	2.76	2.57	2.54	2.71	2.57	2.76	2.61	-	2.76
Clerkship	1.9	1.9	1.9	-	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Project work	2.32	2.38	2.38	2.25	2.20	2.32	2.41	2.20	2.32	2.55	2.20
Direct PO Attainment	2.47	2.47	2.55	2.36	2.30	2.38	2.26	2.46	2.38	2.55	2.53
Total PO Attainment	2.47	2.47	2.55	2.36	2.30	2.38	2.26	2.46	2.38	2.55	2.53



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COURSE OUTCOMES (COs) & PROGRAM OUTCOMES (POs) ATTAINMENT

B PHARMACY (AY 2020-21)



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COURSE OUTCOMES ATTAINMENT
B. PHARMACY PROGRAM (ACADEMIC YEAR 2020-21)

Name of subject	CO No	CO Attainment
F. Y. B. PHARM SEM I		
Pharmaceutical Inorganic Chemistry	COBP104.1T	2.44
	COBP104.2T	2.44
	COBP104.3T	2.44
	COBP104.4T	2.44
	COBP104.5T	2.5
	COBP110.6P	3
	COBP110.7P	2.76
	COBP110.8P	2.76
Average CO Attainment		2.61
Pharmaceutics I	COBP103.1 T	1.88
	COBP103.2 T	1.88
	COBP103.3 T	1.88
	COBP103.4 T	1.88
	COBP103.5 T	1.88
	COBP109.6 P	1.88
	COBP109.7 P	1.88
Average CO Attainment		1.88
Human Anatomy and Physiology I	COBP101.1 T	3
	COBP101.2 T	2.8
	COBP101.3 T	2.8
	COBP101.4 T	2.8
	COBP101.5 T	2.8
	COBP107.1 P	2.5
	COBP107.2 P	2.5
Average CO Attainment		2.74
Pharmaceutical Analysis I	COBP102.1 T	2.44
	COBP102.2 T	2.72
	COBP102.3 T	2.44
	COBP102.4 T	2.24
	COBP102.5 T	2.44
	COBP108.6 P	3
	COBP108.7 P	3
Average CO Attainment		2.61
Remedial Biology	COBP106RB.1 T	2.16
	COBP106RB.2 T	2.16
	COBP106RB.3 T	2.16
	COBP112RB.1 P	2.44
	COBP112RB.2 P	2.44
Average CO Attainment		2.27
Communication Skills	COBP105.1 T	3
	COBP105.2 T	3
	COBP105.3 T	3
	COBP105.4 T	3
	COBP105.5 P	2.4
Average CO Attainment		2.88

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Name of subject	CO No	CO Attainment
F. Y. B. PHARM SEM II		
Human Anatomy and Physiology II	COBP201.1 T	2.16
	COBP201.2 T	2.16
	COBP201.3 T	2.16
	COBP201.4 T	2.16
	COBP201.5 T	2.16
	COBP207.1 P	1.68
	COBP207.2 P	1.88
Average CO Attainment		2.05
Pharmaceutical Organic Chemistry I	COBP202.1T	2.76
	COBP202.2T	2.76
	COBP202.3T	2.88
	COBP202.4T	3
	COBP202.5T	3
	COBP208.6P	2.88
	COBP208.7P	2.88
	COBP208.8P	3
Average CO Attainment		2.89
Biochemistry	COBP203.1T	3
	COBP203.2T	3
	COBP203.3T	2.28
	COBP203.4T	2.28
	COBP209.5P	3
	COBP209.6P	3
	COBP209.7P	2.28
	COBP209.8P	2.08
Average CO Attainment		2.61
Pathophysiology	COBP204.1T	2.15
	COBP204.2T	2.15
	COBP204.3T	1.96
	COBP204.4T	1.96
	COBP204.5T	2.15
Average CO Attainment		2.07
Computer applications in pharmacy	COBP205.1 T	3
	COBP205.2 T	3
	COBP205.3 T	3
	COBP205.4 T	3
	COBP205.5 T	3
	COBP210.6 P	2.44
	COBP210.7 P	2.44
Average CO Attainment		2.84
EVS	COBP206.1T	1.88
	COBP206.2T	1.88
	COBP206.3T	1.88
	COBP206.4T	1.88
Average CO Attainment		1.88

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Name of subject	CO No	CO Attainment
S. Y. B. PHARM SEM III		
Physical Pharmaceutics I	COBP302.1T	2.76
	COBP302.2T	2.76
	COBP302.3T	2.8
	COBP302.4T	2.6
	COBP302.5T	3
	COBP306.6P	3
	COBP306.7P	3
Average CO Attainment		2.84
Pharmaceutical Organic Chemistry II	COBP301.1T	2.76
	COBP301.2T	2.88
	COBP301.3T	2.88
	COBP301.4T	2.88
	COBP305.5P	3
	COBP305.6P	3
	COBP305.7P	3
Average CO Attainment		2.91
Pharmaceutical Microbiology	COBP303.1T	3
	COBP303.2T	3
	COBP303.3T	3
	COBP303.4T	3
	COBP303.5T	3
	COBP307.6P	2.2
	COBP307.7P	2.2
Average CO Attainment		2.77
Pharmaceutical Engineering	COBP304.1T	3
	COBP304.2T	3
	COBP304.3T	3
	COBP304.4T	3
	COBP304.5T	2.28
	COBP304.6T	3
	COBP308.7P	3
	COBP308.8P	3
Average CO Attainment		2.91


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Name of subject	CO No	CO Attainment
S. Y. B. Pharm Sem IV		
Pharmacology I	COBP404.1T	2.15
	COBP404.2T	2.15
	COBP404.3T	1.96
	COBP404.4T	1.96
	COBP408.5P	2.15
	COBP408.6P	2.15
	COBP408.7P	2.15
Average CO Attainment		2.09
Pharmacognosy and Phytochemistry I	COBP 405 T1	2.76
	COBP 405 T2	2.76
	COBP 405 T3	2.76
	COBP 405 T4	2.76
	COBP 405 P1	3
	COBP 405 P2	3
Average CO Attainment		2.84
Medicinal Chemistry-I	COBP402.1T	2.76
	COBP402.2T	2.76
	COBP402.3T	2.76
	COBP402. 4T	2.76
	COBP406. 5P	3
	COBP406. 6P	3
	COBP406. 7P	3
Average CO Attainment		2.86
Physical Pharmaceutics-II	COBP403.1T	2.32
	COBP403.2T	2.56
	COBP403.3T	2.56
	COBP403.4T	2.8
	COBP403.5T	2.56
	COBP403.6P	2.8
	COBP403.7P	2.8
Average CO Attainment		2.62
Pharmaceutical Organic chemistry III	CO. BP401.1T	2.44
	CO. BP401.2T	2.44
	CO. BP401.3T	2.44
	CO. BP401.4T	2.44
	CO. BP401.5T	2.44
Average CO Attainment		2.44


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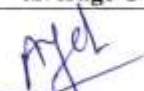




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Name of subject	CO No	CO Attainment
T. Y. B. PHARM SEM V		
Pharmacognosy and phytochemistry II	COBP504.1T	2.76
	COBP504.2T	2.76
	COBP504.3T	2.76
	COBP504.4T	2.76
	COBP504.5T&P	3
	COBP504.6T&P	3
	COBP504.7T	2.76
	COBP504.8T	2.76
Average CO Attainment		2.82
Industrial Pharmacy I	COBP502.1T &P	3
	COBP502.2T &P	3
	COBP502.3T &P	3
	COBP502.4T &P	3
	COBP502.5T &P	3
	COBP502.6T &P	3
Average CO Attainment		3
Medicinal chemistry -II	COBP501.1T	2.44
	COBP501.2T	2.44
	COBP501.3T	2.44
	COBP501.4T	2.44
Average CO Attainment		2.44
Pharmacology II	COBP503.1 T	2.2
	COBP503.2 T	2.44
	COBP503.3 T	1.96
	COBP503.4 T	2.2
	COBP503.5 P	2.88
	COBP503.6 P	2.88
	COBP503.7 P	3
Average CO Attainment		2.50
Pharm Jurisprudence	COBP505.1 T	3
	COBP505.2 T	3
	COBP505.3 T	3
	COBP505.4 T	3
	COBP505.5 T	2.28
Average CO Attainment		2.85


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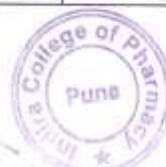
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Name of subject	CO No	CO Attainment
T. Y. B. PHARM SEM VI		
Quality Assurance	COBP606.1 T	3
	COBP606.2 T	2.8
	COBP606.3 T	2.8
	COBP606.4 T	2.8
	COBP606.5 T	3
	COBP606.6 T	3
Average CO Attainment		2.9
Herbal Drug technology	COBP 603.1T	2.76
	COBP 603.2T	2.76
	COBP 603.3T&P	2.76
	COBP 603.4T	2.76
	COBP 609.1P	3
	COBP 609.2P	3
Average CO Attainment		2.84
Biopharm and Pharmacokinetics	COBP604.1 T	2.6
	COBP604.2 T	2.6
	COBP604.3 T	2.6
	COBP604.4 T	2.8
	COBP604.5 T	2.6
	COBP604.6 T	2.8
Average CO Attainment		2.66
Pharmacology III	COBP602.1 T	1.68
	COBP602.2 T	1.68
	COBP602.3 T	1.48
	COBP602.4 T	1.76
	COBP602.1 P	1.76
	COBP602.2 P	2.04
Average CO Attainment		1.73
Medicinal chemistry -III	COBP601.1T	1.88
	COBP601.2T	1.88
	COBP601.3T	1.88
	COBP601.4T	1.88
	COBP601P.1	2.44
	COBP601P.2	2.44
Average CO Attainment		2.06
Pharmaceutical Biotechnology	COBP605.1T	2.6
	COBP605.2T	2.6
	COBP605.3T	2.6
	COBP605.4T	2.6
Average CO Attainment		2.6

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Name of subject	CO No	CO Attainment
FINAL YR B. PHARM SEM VII		
Sterile Product Technology	CO 4.7.1.1 T	3
	CO 4.7.1.2 T	3
	CO 4.7.1.3 T	3
	CO 4.7.1.4 T	3
	CO 4.7.1.5 P	3
	CO 4.7.1.6 P	1.72
Average CO Attainment		2.78
Medicinal chemistry -III	CO 4.7.3.1T	3
	CO 4.7.3.2T	3
	CO 4.7.3.3T	3
	CO 4.7.3.4T	3
	CO 4.7.3.5P	2.44
	CO 4.7.3.6P	2.44
Average CO Attainment		2.81
Pharmacology IV	CO 4.7.4 1T	2.2
	CO 4.7.4 2T	2.2
	CO 4.7.4 3T	2.2
	CO 4.7.4 4T	2.32
	CO 4.7.4 5P	2.44
	CO 4.7.4 6P	2.44
	CO 4.7.4 7P	2.44
Average CO Attainment		2.32
Pharmaceutical Analysis V	CO 4.7.2.1 T	2.32
	CO 4.7.2.2 T	2.16
	CO 4.7.2.3 T	2.16
	CO 4.7.2.4 T	2.16
	CO 4.7.2.5 T	1.92
	CO 4.7.2.6 T	2.24
	CO 4.7.2.1 P	2.24
	CO 4.7.2.2 P	2.76
	CO 4.7.2.3 P	2.76
	CO 4.7.2.4 P	3
Average CO Attainment		2.37
Natural Drug Technology	COBP 4.7.5 T1	2.88
	CO BP 4.7.5 T2	2.88
	CO BP 4.7.5 T3	2.22
	CO BP 4.7.5 T4	1.96
	CO BP 4.7.5 P1	2.86
	CO BP 4.7.5 P2	2.86
	CO BP 4.7.5 P3	2.86
Average CO Attainment		2.64
Biopharmaceutics & Pharmacokin	CO 4.7.6.1 T	2.28
	CO 4.7.6.2 T	3
	CO 4.7.6.3 T	3
	CO 4.7.6.4 T	3
	CO 4.7.6.5 T	3
	CO 4.7.6.6 T	3
Average CO Attainment		2.88

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Pharm Jurisprudence	CO 4.7.7.1 T	3
	CO 4.7.7.2 T	3
	CO 4.7.7.3 T	3
	CO 4.7.7.4 T	2.28
	CO 4.7.7.5 T	2.28
Average CO Attainment		2.71



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Name of subject	CO No	CO Attainment
FINAL YR B. PHARM SEM VIII		
Adv Drug Delivery System	CO 4.8.1.1 T	3
	CO 4.8.1.2 T	3
	CO 4.8.1.3 T	3
	CO 4.8.1.4 T	1.16
	CO 4.8.1.5 P	1.16
	CO 4.8.1.6 P	3
Average CO Attainment		2.38
Cosmetic Science	CO 4.8.2.1 T&P	2.72
	CO 4.8.2.2 T&P	2.72
	CO 4.8.2.3 T&P	2.72
	CO 4.8.2.4 T&P	2.72
	CO 4.8.2.5 T&P	2.72
	CO 4.8.2.6 T&P	2.72
Average CO Attainment		2.72
Pharmacology V	CO 4.8.5 1T	2.44
	CO 4.8.5 2T	2.44
	CO 4.8.5 3T	2.44
	CO 4.8.5 4T	2.44
	CO 4.8.5 5P	2.6
	CO 4.8.5 6P	3
	CO 4.8.5 7P	2.76
Average CO Attainment		2.58
Pharmaceutical Analysis VI	CO 4.8.3.1 T	2.36
	CO 4.8.3.2 T	2.36
	CO 4.8.3.3 T	2.24
	CO 4.8.3.4 T	1.96
	CO 4.8.3.5 T	2.48
	CO 4.8.3.6 T	2.2
	CO 4.8.3.1 P	2.36
	CO 4.8.3.2 P	2.36
	CO 4.8.3.3 P	2.36
	CO 4.8.3.4 P	2.36
Average CO Attainment		2.30
Medicinal chemistry -IV	CO 4.8.4.1T	3
	CO 4.8.4.2T	3
	CO 4.8.4.3T	3
	CO 4.8.4.4T	3
	CO 4.8.4.5P	3
	CO 4.8.4.6P	3
Average CO Attainment		3
Natural Product commerce IR	CO.4.8.6.1T	2.44
	CO.4.8.6.2T	2.44
	CO.4.8.6.3 T	2.44
	CO.4.8.6.4T	2.44
Average CO Attainment		2.44

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Quality Assurance Tech.	CO 4.8.7.1T	2.2
	CO 4.8.7.2T	2.2
	CO 4.8.7.3T	2.2
	CO 4.8.7.4T	2.2
	CO 4.8.7.5T	2.2
Average CO Attainment		2.2


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PROGRAM OUTCOMES (COs) ATTAINMENT- B PHARMACY (AY 2020-21)



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PROGRAM OUTCOMES (PO) ATTAINMENT
B. PHARM PROGRAM
ACADEMIC YEAR 2020-21

Name of subject	Direct PO Attainment										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
F. Y. B. Pharm Sem I											
Pharmaceutical Inorganic Chemistry	2.42	-	2.19	2.4	2.4	1.85	2.41	2.12	1.49	2.44	2.11
Pharmaceutics I	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88
Human Anatomy and Physiology I	2.75	2.7	2.73	2.7	2.73	2.74	-	2.78	2.73	2.81	2.76
Pharmaceutical Analysis I	2.61	3	2.62	1.51	-	2.29	2.61	-	2	-	2.61
Remedial Biology	2.27	2.27	2.25	2.49	2.16	2.26	-	2.27	2.21	2.87	2.27
Communication Skills	2.88	2.94	2.89	2.49	2.93	2.93	2.91	2.88	2.89	2.95	2.91
F. Y. B. Pharm Sem II											
Human Anatomy and Physiology II	2.05	2.05	1.99	2.04	2.05	2.05	-	2.05	2.05	2.05	2.05
Pharmaceutical Organic Chemistry I	3		2.71	3	3	3	3	3	2.54	3	3
Biochemistry	2.62	2.54	2.55	2.58	-	2.58		2.64	2.61	-	2.53
Pathophysiology	2.1	2.13	2.15	2.12	2.15	2.1	2.12	2.15	2.11	2.12	2.1
Computer applications in pharmacy	2.84	2.84	2.82	2.81	2.68	2.75	2.76	2.81	2.81	3	2.8
EVS	-	-	-	-		-	-	-	-	1.88	1.88



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ACADEMIC YEAR 2020-21	PO Attainment											
	Name of subject	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
S. Y. B. Pharm Sem III												
Physical Pharmaceutics I	2.85	2.85	2.85	2.85	2.85	3	2.85	2.85	2.85	2.88	2.85	
Pharmaceutical Organic Chemistry II	2.91	2.94	2.93	2.9	2.93	2.92	2.97	2.92	2.91	2.94	2.93	
Pharmaceutical Microbiology	2.77	2.75	2.75	2.7	3	3	2.8	2.8	2.77	2.73	2.68	
Pharmaceutical Engineering	2.9	2.9	2.9	3	3	3	3	2.89	3	3	2.87	
S. Y. B. Pharm Sem IV												
Pharmacology I	2.1	2.13	2.15	2.12	2.15	2.1	2.12	2.15	2.11	2.12	2.1	
Pharmacognosy and Phytochemistry I	2.72	2.78	2.8	2.76	2.7	2.7	2.76	2.8	2.72	2.8	2.76	
Medicinal Chemistry-I	2.86	2.84	2.85	2.79	2.81	2.82	2.79	2.83	2.81	3	2.86	
Physical Pharmaceutics-II	2.59	2.59	2.59	2.8	2.56	2.56	2.56	2.59	2.56	2.8	2.61	
Pharmaceutical Organic Chemistry III	2.44	2.44	2.44	2.44	0	2.44	2.44	2.44	2.44	2.44	2.44	
T. Y. B. Pharm Sem V												
Pharmacognosy and phytochemistry II	2.59	2.61	2.59	2.73	2.69	2.61	2.75	2.64	2.68	-	2.64	
Industrial Pharmacy	3	3	3	3	3	3	3	3	3	3	3	
Medicinal chemistry -II	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	
Pharmacology II	2.51	2.52	2.47	2.73	2.63	2.51	2.82	2.58	2.6	-	2.58	
Pharm Jurisprudence	2.86	2.92	3	2.28	3	3	2.86	2.93	2.82	2.52	2.9	
T. Y. B. Pharm Sem VI												
Quality Assurance	2.9	2.89	2.91	3	2.86	2.92	2.91	2.93	2.9	3	2.91	
Herbal Drug technology	2.59	2.61	2.59	2.73	2.69	2.61	2.75	2.64	2.68	-	2.64	
Biopharm and Pharmacokinetics	2.67	2.67	2.67	2.6	2.6	2.6	2.6	2.67	2.6	2.6	2.68	
Pharmacology III	1.73	1.75	1.76	2.16	1.77	1.94	1.48	1.72	2.12	2.02	1.73	
Medicinal chemistry -III	2.07	2.05	2.02	2.28	2.07	2.07	2.6	2.09	2.16	-	2.14	
Pharmaceutical biotechnology	2.86	2.92	3	2.28	3	3	2.86	2.93	2.82	2.52	2.9	



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ACADEMIC YEAR 2020-21 Name of subject	PO Attainment										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
Final Yr B. Pharm Sem VII											
Sterile Product Technology	2.79	2.74	2.76	2.45	2.57	2.72	2.45	2.68	2.57	-	2.7
Medicinal chemistry -III	2.81	2.69	2.78	2.69	2.44	2.83	2.79	3	3.27	2.6	2.8
Pharmacology IV	2.3	2.37	2.3	2.44	1.39	2.05	1.81	2.44	1.73	2.44	2.29
Pharmaceutical Analysis V	2.19	2.21	2.19	1.09	0.64	1.79	1.19	2.22	-	-	2.19
Natural Drug Technology	2.64	2.68	2.6	2.72	2.68	2.66	2.62	2.48	2.66	2.64	2.72
Biopharmaceutics & Pharmacokin	2.88	2.88	2.88	3	2.28	2.28	0	2.92	3	2.28	2.94
Pharm Jurisprudence	2.71	2.76	2.64	2.64	2.88	2.76	2.76	2.46	2.78	3	2.7
Final Yr B. Pharm Sem VIII											
Adv Drug Delivery System	2.39	2.63	2.54	2.47	3	2.8	2.21	2.54	2.69	-	2.29
Cosmetic Science	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72
Pharmacology V	2.59	2.59	2.61	2.81	1.92	2.02	1.56	2.44	1.58	2.44	2.57
Pharmaceutical Analysis VI	2.07	2.12	2.14	0.95	0.57	1.74	0.95	1.98	-	-	2.12
Medicinal chemistry -IV	3	3	3	3	3	3	3	3	3	3	3
Natural Product commerce IR	2.59	2.61	2.59	2.73	2.69	2.61	2.75	2.64	2.68	-	2.64
Quality Assurance Tech.	2.1	2.09	2.06	0.34	1.47	2.2	2.2	2.2	1.22	-	2.09
Average	2.57	2.58	2.56	2.46	2.39	2.53	2.44	2.57	2.52	2.62	2.55



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TOTAL PROGRAM OUTCOMES (PO) ATTAINMENT B. PHARM PROGRAM ACADEMIC YEAR 2020-21

Total PO Attainment											
B Pharm	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
Direct Assessment											
B Pharm (Average of all courses)	2.57	2.58	2.56	2.46	2.39	2.53	2.44	2.57	2.52	2.62	2.55
Direct PO Attainment =Avg PO all courses*.8	2.05	2.07	2.05	1.97	1.92	2.02	1.95	2.06	2.01	2.09	2.04
Indirect Assessment											
Average Indirect assessment	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Indirect PO Attainment =Average Indirect assessment*.2	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Total PO Attainment = Direct PO Attainment + Indirect PO Attainment	2.31	2.33	2.31	2.23	2.18	2.28	2.21	2.32	2.27	2.35	2.30



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COURSE OUTCOMES (COs) & PROGRAM OUTCOMES (POs) ATTAINMENT

M PHARMACY PHARMACEUTICS (AY 2020-21)



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COURSE OUTCOMES (PO) ATTAINMENT
M. PHARM PHARMACEUTICS
ACADEMIC YEAR 2020-21

Name of subject	CO No	CO Attainment
F Y M. Pharm – Sem I (Pharmaceutics)		
Regulatory Affairs	COMPH104.1 T	2.44
	COMPH104.2 T	2.44
	COMPH104.3 T	2.44
	COMPH104.4 T	2.44
Average CO Attainment		2.44
Drug Delivery System	COMPH102.1T	2.08
	COMPH102.2T	2.08
	COMPH102.3T	2.2
	COMPH102.4T	2.2
Average CO Attainment		2.14
Modern Pharmaceutics	COMPH103.1 T	3
	COMPH103.2 T	3
	COMPH103.3 T	3
	COMPH103.4 T	3
	COMPH103.5 T	3
Average CO Attainment		3
Modern Pharma Anal Techniques	MPH 101.1 T	2.48
	MPH 101.2 T	2.48
	MPH 101.3 T	2.24
	MPH 101.4 T	1.96
	MPH 101.5 T	2.48
	MPH 101.6 T	2.2
	MPH 101.7 T	1.84
Average CO Attainment		2.24
Pharmaceutics I Practical	COMPH105.1P	3
	COMPH105.2P	3
	COMPH105.3P	3
	COMPH105.4P	2.28
	COMPH105.5P	2.28
Average CO Attainment		2.71
Seminar/ Assignment	COMPH106.1	0.66
	COMPH106.2	0.66
Average CO Attainment		0.66

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COURSE OUTCOMES (PO) ATTAINMENT
M. PHARM PHARMACEUTICS
ACADEMIC YEAR 2020-21

Name of subject	CO No	CO Attainment
S Y M. Pharm – Sem III (Pharmaceutics)		
RM & Biostatistics	COMPH- 301.1 T	3
	COMPH- 301.2 T	3
	COMPH- 301.3 T	3
	COMPH- 301.4 T	3
	COMPH- 301.5 T	2.28
	COMPH- 301.6 T	2.28
Average CO Attainment		2.76
Journal club	COMPH 302.1	0
	COMPH 302.2	3
	COMPH 302.3	1.66
Average CO Attainment		1.55
Proposal Presentation	COMPH303.1	3
	COMPH303.2	1
	COMPH303.3	0
	COMPH303.4	1
Average CO Attainment		1.25
Research work	COMPH304.1	1
	COMPH304.2	2
	COMPH304.3	2
	COMPH304.4	2
Average CO Attainment		1.75
Name of subject	CO No	CO Attainment
S Y M. Pharm – Sem IV (Pharmaceutics)		
Journal club	COMPH 302.1	0
	COMPH 302.2	2
	COMPH 302.3	1.33
Average CO Attainment		1.11
Proposal Presentation	COMPH303.1	0
	COMPH303.2	2
	COMPH303.3	1
	COMPH303.4	2
Average CO Attainment		1.25
Research work	COMPH304.1	1
	COMPH304.2	1
	COMPH304.3	1
	COMPH304.4	1
Average CO Attainment		1

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PROGRAM OUTCOMES (COs) ATTAINMENT- M PHARMACY PHARMACEUTICS (AY 2020-21)



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PROGRAM OUTCOMES (PO) ATTAINMENT

M. Pharm (Pharmaceutics)

ACADEMIC YEAR 2020-21

Academic Year 2020-21 Name of subject	Direct PO Attainment										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
F Y M. Pharm – Sem I (Pharmaceutics)											
Regulatory Affairs	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	--	2.44
Drug Delivery System	2.14	2.14	2.14	2.2	-	2.14	2.2	-	-	-	2.15
Modern Pharmaceutics	3	3	3	3	3	3	3	3	3	3	3
Modern Pharma Anal Techniques	2.24	2.24	2.24	1.25	0.9	2.07	1.25	2.24	-	-	2.24
Seminar/ Assignment	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
F Y M. Pharm – Sem II (Pharmaceutics)											
Molecular Pharmaceutics	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44
Advanced Biopharma & P ^r kinetics	2.59	2.68	2.57	1.22	1.4	1.96	0.81	2.55	1.6	-	2.64
Computer Aided Drug Development	1.87	1.87	1.87	1.87	1.64	1.74	1.7	1.82	1.82	-	1.87
Cosmetic & Cosmeceuticals	3	3	3	1.8	0.75	3	3	3	3	-	2.49
Seminar/ Assignment	1.00	0.66	1.00	0.93	1.16	1.00	1.00	1.00	0.93	1.00	1.00
S Y M. Pharm – Sem III (Pharmaceutics)											
RM & Biostatistics	2.76	2.73	2.712	2.778	2.712	2.28	2.28	2.28	3	2.76	2.76
Journal club	1.56	1.00	1.75	1.14	0.83	1.83	0.93	1.28	1.14	1.56	1.56
Proposal Presentation	1.25	1.09	0.90	1.30	1.00	0.67	0.67	0.50	1.00	0.33	1.25
Research work	1.75	1.67	1.82	1.67	1.50	1.89	1.63	1.63	1.63	1.75	1.75
S Y M. Pharm – Sem IV (Pharmaceutics)											
Journal club	1.11	0.80	1.25	0.86	0.67	1.33	0.67	0.89	0.86	1.11	1.11
Proposal Presentation	1.25	1.36	1.50	1.10	1.33	1.67	1.67	1.50	1.20	1.33	1.25
Research work	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Average	1.89	1.81	1.90	1.63	1.46	1.83	1.61	1.76	1.71	1.54	1.86



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PROGRAM OUTCOMES (PO) ATTAINMENT
M. Pharm (Pharmaceutics)
 ACADEMIC YEAR 2020-21

PO Attainment											
M Pharm Pharmaceutics	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
Direct Assessment											
M Pharm (Average of all courses)	1.89	1.81	1.90	1.63	1.46	1.83	1.61	1.76	1.71	1.54	1.86
Direct PO Attainment =avg po all courses*.8	1.51	1.45	1.52	1.30	1.17	1.46	1.29	1.41	1.37	1.23	1.49
Indirect Assessment											
Indirect PO Attainment =Average Indirect assessment*.2	0.16	0.16	0.16	0.14	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Total PO Attainment = Direct PO Attainment + Indirect PO Attainment	1.67	1.61	1.68	1.44	1.33	1.62	1.45	1.57	1.53	1.39	1.65



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COURSE OUTCOMES (COs) & PROGRAM OUTCOMES (POs) ATTAINMENT

M PHARMACY QA (AY 2020-21)



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COURSE OUTCOMES (PO) ATTAINMENT**M. Pharm (Pharma Quality Assurance)**

ACADEMIC YEAR 2020-21

F Y M. Pharm – Sem I (Pharm Quality Assurance)		
Name of subject	CO No	CO Attainment
Product Devt and Tech Transfer	COMQA 104.1T	2.52
	COMQA 104.2T	2.52
	COMQA 104.3T	3
	COMQA 104.4T	3
	COMQA 104.5T	3
Average CO Attainment		2.81
Quality Control and Quality Assurance	COMQA103.1T	2.88
	COMQA103.2T	2.76
	COMQA103.3T	2.76
	COMQA103.4T	3
	COMQA103.5T	2.76
Average CO Attainment		2.83
Quality Management System	COMQA-102T 1	3
	COMQA-102T 2	3
	COMQA-102T 3	3
	COMQA-102T 4	2.28
Average CO Attainment		2.82
Modern Pharma Anal Techniques	COMPAT 101.1 T	2.48
	COMPAT 101.2 T	2.48
	COMPAT 101.3 T	2.24
	COMPAT 101.4 T	1.96
	COMPAT 101.5 T	2.48
	COMPAT 101.6 T	2.2
	COMPAT 101.7 T	1.84
Average CO Attainment		2.24
Quality Assurance Practical –I	COMQA -105.1P	2.36
	COMQA -105.2P	2.36
	COMQA -105.3P	2.36
	COMQA -105.4P	2.36
Average CO Attainment		2.36
Seminar/ Assignment	COMQA106.1	2.8
	COMQA106.2	2
Average CO Attainment		2.4

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COURSE OUTCOMES (PO) ATTAINMENT
M. Pharm (Pharma Quality Assurance)
ACADEMIC YEAR 2020-21

Name of subject	CO No	CO Attainment
Pharmaceutical Validation	COMQA 202.1 T	2.2
	COMQA 202.2 T	2.2
	COMQA 202.3 T	2.2
	COMQA 202.4 T	2.44
	COMQA 202.5 T	2.2
	COMQA 202.6 T	2.44
Average CO Attainment		2.28
Audits and Regulatory Compliance	COMQA203.1 T	2.76
	COMQA203.2 T	2.76
	COMQA203.3 T	2.76
	COMQA203.4 T	2.52
	COMQA203.5 T	2.52
Average CO Attainment		2.66
Pharmaceutical Manufacturing Technology	COMQA204.1 T	1.76
	COMQA204.2 T	1.76
	COMQA204.3 T	1.56
	COMQA204.4 T	1.56
Average CO Attainment		1.66
Hazard & Safety Management	COMQA 201.1 T	2.44
	COMQA 201.2 T	2.44
	COMQA 201.3 T	2.44
	COMQA 201.4 T	2.44
	COMQA 201.5 T	1.72
	COMQA 201.6 T	2.44
	COMQA 201.7 T	2.44
Average CO Attainment		2.34
Quality Assurance Practical –II	COMQA -205.1P	2.68
	COMQA -205.2P	2.68
	COMQA -205.3P	2.68
	COMQA -205.4P	2.68
Average CO Attainment		2.68
Seminar/ Assignment	COMQA206.1	2
	COMQA206.2	1.75
Average CO Attainment		1.88

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PROGRAM OUTCOMES (COs) ATTAINMENT- M PHARMACY PQA (AY 2020-21)



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PROGRAM OUTCOMES (PO)

M. Pharm (Pharmaceutical Quality Assurance)

ACADEMIC YEAR 2020-21

Academic Year 2020-21	Direct PO Attainment										
Name of subject	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
F Y M. Pharm – Sem I (Pharm Quality Assurance)											
Product Devt and Tech Transfer	2.78	2.83	2.78	2.5	0.75	2.21	3	2.81	2.88	-	2.81
Quality Control and Quality Assurance	2.33	2.28	2.3	2.34	2.2	2.26	2.41	2.31	2.3	-	2.34
Quality System Management	2.82	2.86	2.82	2.82	2.9	2.86	3	2.82	3	-	3
Modern Pharma Anal Techniques	2.24	2.24	2.24	1.25	0.9	2.07	1.25	2.24	-	-	2.24
Pharm. Quality Assurance I Practical	2.36	2.36	2.36	0.79	1.18	2.36	0.39	2.36	2.36	-	2.36
Seminar/ Assignment	2.4	2.8	2.4	2.48	2.2	2.4	2.4	2.4	2.48	2.4	2.4
F Y M. Pharm – Sem II (Pharm Quality Assurance)											
Pharmaceutical Validation	2.28	2.28	2.28	1.14	0.93	1.97	1.14	2.28	-	-	2.28
Pharmaceutical Manufacturing Technology	1.6	1.63	1.6	1.6	1.63	1.64	1.56	1.63	1.6	1.71	1.65
Audits and Regulatory Compliance	2.66	2.66	2.76	1.38	0.28	2.03	0.95	2.76	1.38	-	2.68
Hazard & Safety Management	2.34	2.38	2.4	2.3	2.44	2.37	2.22	2.37	2.35	2.44	2.31
Pharm. Quality Assurance II Practical	2.68	2.68	2.68	2.68	-	2.68	-	2.68	2.68	-	2.68
Seminar/ Assignment	1.88	2.00	1.88	1.90	1.81	1.88	1.88	1.88	1.90	1.88	1.88
Direct PO Attainment	2.36	2.42	2.37	1.93	1.57	2.23	1.84	2.38	2.29	2.11	2.39
Total PO Attainment	2.36	2.42	2.37	1.93	1.57	2.23	1.84	2.38	2.29	2.11	2.39



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