

NIRMALA COLLEGE OF PHARMACY



NIRMALA COLLEGE OF PHARMACY MUVATTUPUZHA

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FIRST CYCLE NAAC ACCREDITATION 2023

CRITERION 2



TEACHING- LEARNING AND EVALUATION

2.6.1. Programme Outcomes (POs) and Course Outcomes (COs) for all Programmes offered by the institution are stated and displayed on website and attainment of POs and COs are evaluated

Submitted to



THE NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL



2.6.1: Programme Outcomes (POs) and Course Outcomes (COs) for all Programmes offered by the institution are stated and displayed on website and attainment of POs and COs are evaluated

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Course Outcomes (COs) for Pharm D Program offered by the institution

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2.6.1.
QIM : Course Outcomes (COs) for
all Programmes
offered by the institution

Pharm D

2.6.1:
Course Outcomes (COs)

Program: pharm D

Batch: 1st year





Nirmala College of Pharmacy, Muvattupuzha

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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2022-2028
Semester	1
Subject	Human Anatomy and Physiology

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	C01	Explain the anatomy, physiology and functions of various Tissues and cell, organization of cellular system, muscle contraction and its disorders.	Unit 1,2,3	Remember	KARTHIKEYAN M
2	C02	Explain Haemopoetic and lymphatic system homeostatic and its altered physiology	Unit 5 and 6	Understand	KARTHIKEYAN M
3	C03	Explain the anatomy and Physiology of cardiovascular, respiratory system, Digestive system, Nervous system, and its disorders	Unit 7,8,9 and 10	Understand	KARTHIKEYAN M
4	C04	Explain the Anatomy and Physiology of endocrine system, urinary and reproductive system and sense organs and its disorders	Unit 11,12,13 and 14	Understand	KARTHIKEYAN M
5	C05	Explain anatomy and physiology of skeletal system, joints sport physiology , drugs and athletics	unit 15 and 16	Apply	KARTHIKEYAN M

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2022-2028
Semester	1
Subject	Human Anatomy and Physiology

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
C01	Point : 3 Justification : A deep knowledge on various Tissues and cell, organization of cellular system, muscle contraction and its disorders.	Point : 1 Justification : Proper planning is needed to have an in depth study of human anatomy		Point : 3 Justification : Using certain physiology simulated softwares, demo kits.	Point : 1 Justification : Ability to handle an urgent case, providing first-aids etc.	Point : 3 Justification : Providing awareness to common public regarding basic health issues.	Point : 3 Justification : Making prompt decision while coming across any issues regarding human physiology.	Point : 1 Justification : To write reports and documents on health issues and diseases.	Point : 3 Justification : Propagate keen awareness to the society especially during the threat of communicable diseases.		Point : 3 Justification : Updating with newly found diseases and its remedies.				
C02	Point : 3 Justification : A deep knowledge on Haemopoetic and lymphatic system homeostatic and its altered physiology.	Point : 1 Justification : A firm grip over how human body plans in terms of feedback mechanism and act accordingly	Point : 1 Justification : To correlate the disease with body physiology and feedback mechanism	Point : 3 Justification : To handle modern tools to recognize diseases.	Point : 1 Justification : Handling any practical emergencies.	Point : 2 Justification : Awareness on how body reacts to pathogens		Point : 3 Justification : Understand and provide awareness regarding health issues	Point : 3 Justification : Provide knowledge, precautionary measures and proper guidelines on genetic diseases	Point : 1 Justification : Awareness regarding proper environment for personal health	Point : 3 Justification : Update the knowledge on new mechanisms in feedback system				
C03	Point : 3 Justification : A thorough knowledge on the anatomy and Physiology of cardiovascular, respiratory system, Digestive system, Nervous system, and its disorders.			Point : 3 Justification : Use the modern diagnostic techniques or instruments to demonstrate and understand the anatomy		Point : 3 Justification : As a healthcare professional help the patients to know their body physiology	Point : 3 Justification : Making prompt decision while coming across any issues regarding human anatomy	Point : 1 Justification : The anatomical structures/organization can be properly communicated.	Point : 3 Justification : Proper Reasoning and intellectual capacity in health care facilitates to contribute significantly to the needy people in the society.		Point : 3 Justification : Researching and updating with facts on human body help to self assessment.				
C04	Point : 3 Justification : A vast and deep knowledge on the anatomy and Physiology of endocrine system, urinary and reproductive system and sense organs and its disorders			Point : 3 Justification : Using modern tools like animations etc, able to understand the proper mechanism		Point : 3 Justification : For Proper understanding of mechanisms underlying various diseases	Point : 3 Justification : Provide proper and exact understanding on diseases and guide them to maintain proper health state	Point : 1 Justification : Understand and provide awareness regarding underlying	Point : 3 Justification : Propagate keen awareness to the society especially during the threat of various diseases.		Point : 3 Justification : Updating with newly found diseases and its remedies.				



	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
C05	Point : 3 Justification : A sound knowledge anatomy and physiology of skeletal system, joints sport physiology , drugs and athletics.	Point : 1 Justification : Plan and learn coordinated working pattern of different organs of each system	Point : 1 Justification : Analyze the alterations that commonly occurs in the physiology by closely observing the normal body functioning	Point : 2 Justification : Use the modern diagnostic techniques or instruments to demonstrate and understand the physiology		Point : 3 Justification : As a healthcare professional help the patients to know their body physiology	Point : 3 Justification : Making prompt decision while coming across any issues regarding human physiology	Point : 3 Justification : The physiological constants and mechanisms can be properly communicated	Point : 3 Justification : Proper Reasoning and intellectual capacity in health care facilitates to contribute significantly to the needy people in the society.		Point : 3 Justification : Researching and updating with facts on human body help to self assessment				
Average Score	3	1	1	2.8	1	2.8	3	1.8	3	1	3				

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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2022-2028
Semester	1
Subject	Pharmaceutics Theory

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	PD 1	CO1	Explain history of the profession of Pharmacy in India & Pharmacopeia and its development.	Understand	Flowerlet Mathew
2	PD2	CO2	Learn parts and handling of prescription, posology & dose calculation of drug in imperial system as well as metric system.	Apply	Flowerlet Mathew
3	PD 3	CO3	Understand basic requirements, formulation and evaluation of conventional dosage forms like powder, liquid (monophasic & biphasic) and semi solid dosage forms.	Apply	Flowerlet Mathew
4	PD 4	CO4	To understand about pharmaceutical incompatibility and methods to overcome	Analyze	Flowerlet Mathew
5	PD 5	CO5	Understand the method of preparation, purification and storage of galenicals as well as surgical aids and its pharmaceutical and clinical applications.	Understand	Flowerlet Mathew

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2022-2028
Semester	1
Subject	Pharmaceutics Theory

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
PD 1	Point : 3				Point : 2	Point : 2	Point : 2		Point : 3		Point : 2				
PD2	Point : 3		Point : 3 Justification : Apply informations in dose calculation of drug in children		Point : 2 Justification : Understanding handling of prescription in a professional way & dose calculation of drug in children assumes the pharmacist to be responsible persons. Understanding the mechanisms and factors influencing dermal penetration of drugs, proper planning for selection ingredients for formulating semi solids can be achieved	Point : 3 Justification : Understands the role of pharmacist as health promoters		Point : 2 Justification : Understanding importance of Communication and counselling patients regarding the use of drugs	Point : 3 Justification : Understanding the way to handle prescription, errors and possible ways to minimize errors, one can act as a responsible pharmacist		Point : 2 Justification : For handling a prescription one must have a thorough knowledge about drugs and this encourages the pharmacist to upgrade himself.				
PD 3	Point : 3 Justification : Conventional dosage forms are the most commonly used formulations by patients. Formulation aspects contribute to basic pharmacy knowledge	Point : 2 Justification : Understanding basic requirements for formulation and evaluation of conventional dosage forms, proper planning for selection ingredients and methods of preparation is obtained	Point : 2 Justification : Utilize the principles in designing dosage forms		Point : 2 Justification : Understanding basic requirements for formulation and evaluation of conventional dosage forms, makes one to select best excipients and methods of preparation	Point : 2 Justification : Knowledge about dosage forms makes one able to meet professional needs in formulation development			Point : 3 Justification : Enables one to acquire knowledge as formulator in pharmacy profession		Point : 2 Justification : For formulating dosage forms, one must have a thorough knowledge about advancements in pharmaceutical technologies and this encourages the pharmacist to upgrade himself.				
PD 4	Point : 3 Justification : Identifying incompatibilities and methods to overcome the same adds to the pharmacy knowledge of students		Point : 2 Justification : Understanding different incompatibilities that may happen in prescription, one can analyse the prescription and apply the		Point : 2 Justification : Understanding different incompatibilities that may happen in prescription, one can analyse the prescription and apply the knowledge to correct the same thereby fulfil professional responsibilities	Point : 2 Justification : Knowing the incompatibilities and remedial measures, that can possibly happen one can act as a health promoter			Point : 3 Justification : Knowing the incompatibilities and remedial measures, that can possibly happen one can act as a		Point : 2 Justification : For understanding incompatibilities in prescription, one must have a thorough knowledge about drugs and this encourages the				

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
			knowledge to correct the same,						responsible pharmacist		pharmacist to upgrade himself				
PD 5	Point : 3 Justification : Understanding the mechanisms and factors influencing dermal penetration of drugs provide pharmacy knowledge to formulate dosage forms applied on skin	Point : 3 Justification : Understanding the mechanisms and factors influencing dermal penetration of drugs, proper planning for selection ingredients for formulating semi solids can be achieved	Point : 1 Justification : Utilize the principles in designing semi solid dosage forms		Point : 2 Justification : Utilize the principles in designing semi solid dosage forms and hence perform a participatory role in facilitating improvement in health and wellbeing of society	Point : 2 Justification : Utilize the principles in designing semi solid dosage forms and hence perform a participatory role in facilitating improvement in health and wellbeing of society	Point : 2		Point : 3 Justification : Enables one to acquire knowledge as formulator in pharmacy profession		Point : 2 Justification : For formulating dosage forms, one must have a thorough knowledge about advancements in pharmaceutical technologies and this encourages the pharmacist to upgrade himself.				
Average Score	3	2.5	2		2	2.2	2	2	3		2				

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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2022-2028
Semester	1
Subject	Medicinal Biochemistry

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO1	Enlist and describe the cell organelles with their molecular and functional organization	To remember about the function of each cell organelles	Remember	Saranya T S
2	CO2	Outline the structure, function, and interrelationships of various biomolecules and the consequences of deviation from the normal	To understand of the metabolic pathway of various biomolecules and its parameters	Understand	Saranya T S
3	CO3	To know about bioenergetics and biological oxidation in the cell	To understand the bioenergetics and biological oxidation of cell	Understand	Saranya T S
4	CO4	To understand the catalytic role, therapeutic and diagnostic applications of enzymes and isoenzymes	application of enzymes and isoenzymes by catalytically, therapeutically and diagnostically	Apply	Saranya T S
5	CO5	To know about the various biomolecules that affect the metabolism and the pathways of several diseases.	To understand the metabolic functions of biomolecules and its metabolic disorders	Understand	Saranya T S
6	CO 6	To understand the genetic organization of mammalian genome protein synthesis, replication mutation, and repair mechanism, etc.	Study of human genome and its application	Apply	Saranya T S

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2022-2028
Semester	1
Subject	Medicinal Biochemistry

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
CO1															
CO2	Point : 3 Justification : Possess knowledge About the structure of biomolecules to study the mechanism of drug action	Point : 2 Justification : To plan and identify the right cells for In-vitro studies	Point : 2 Justification : Select appropriate cell lines for In-vitro studies	Point : 2 Justification : Knowledge about cells helps in selecting appropriate cell lines and techniques for In-vitro studies.	Point : 2	Point : 3 Justification : Undertaking tasks like the preservation of cells and cell lines	Point : 3	Point : 3	Point : 2 Justification : Can give a message to society about the value of life	Point : 2 Justification : This will lead to respect for all forms of life and preserve the environment.	Point : 2 Justification : By applying the basic concepts of Biochemistry can do research for the development of new molecules.				
CO3	Point : 3 Justification : Can contribute to pharmacy knowledge	Point : 2	Point : 3 Justification : Identification of enzymes that catalyzes oxidation-reduction reactions	Point : 3 Justification : Sound knowledge of enzymes helps in electrophoresis studies	Point : 3	Point : 3 Justification : Educate the masses about enzyme action	Point : 3	Point : 3	Point : 3 Justification : Knowledge of oxidative enzymes can impart significant contributions to the medical world which benefit the society	Point : 2 Justification : By simulating biochemical reactions, we can produce rare substances in large quantities	Point : 3 Justification : Enhance research in the field of enzymes				
CO4	Point : 3 Justification : Acquire knowledge of identifying newer targets of drug action	Point : 2 Justification : Select appropriate enzymes as drug targets	Point : 2 Justification : Evaluation of enzymes that can be used as drug targets	Point : 2 Justification : Helps in electrophoresis, QSAR studies	Point : 2	Point : 3 Justification : Explaining the pharmaceutical uses of enzymes and their storage	Point : 3 Justification : Ethics and sensitivity must be taken care of while dispensing therapeutic agents	Point : 3	Point : 2 Justification : Knowledge of enzymes helps to develop a sustainable society	Point : 2 Justification : Healthy enzyme control mechanisms prevent oxidation reactions in foodstuffs hence helping to avoid harmful pesticides.	Point : 2 Justification : Helps in development of newer drug molecules.				
CO5	Point : 3 Justification : Get the knowledge about various biomolecules as nutrients and therapeutic agents.	Point : 3 Justification : To select the appropriate pathway for drug action	Point : 3 Justification : Can identify the different pathways of drug action.	Point : 3 Justification : Knowledge of biomolecules helps in QSAR studies	Point : 2 Justification : Work as a team leader in cell line studies and genotoxic studies	Point : 3 Justification : Patient counseling on proper nutrition	Point : 3 Justification : Ethics must be there while patenting	Point : 3	Point : 3 Justification : Educating patients about the mechanism of drug action	Point : 2 Justification : Knowledge of bio-molecules helps to educate people about environment-friendly control of pests.	Point : 3 Justification : Can apply this knowledge for rational drug design, new patents e.t.c				
CO 6	Point : 3 Justification : Knowledge	Point : 2 Justification : Select	Point : 2 Justification : Can analyze	Point : 2 Justification : Knowledge about	Point : 2	Point : 3 Justification : Helps to predict	Point : 2 Justification : Knowledge of	Point : 3	Point : 3 Justification : Knowledge of	Point : 2 Justification : Knowledge about	Point : 3 Justification : Can				

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
	about advanced methods like gene therapy, the role of genetics in disease e.t.c	appropriate therapeutic agents by minimizing genotoxicity	the genetics behind the disease	genetics is helpful in flow cytometric studies.		drug toxicity and efficacy	genetics will help in designing ethical based animal studies		genetics can help to change many misconceptions that prevail in society	genetics helps to change many misconceptions about diseases.	apply in the field of pharmacogenomics				
Average Score	3	2.2	2.4	2.4	2.2	3	2.8	3	2.6	2	2.6				

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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2022-2028
Semester	1
Subject	Pharmaceutical Organic Chemistry

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	1.4	Name different organic compounds of natural or synthetic origin by either IUPAC or common naming system.	chapter 2	Understand	DEEPA JOSE
2	1.4	Correlate the physical properties of organic compounds to their chemical behaviour and apply this for separation, purification and identification of compounds	chapter 1	Apply	DEEPA JOSE
3	1.4	Apply the principles of Free radical, nucleophilic, electrophilic substitution, elimination, elimination, oxidation and reduction reactions for the synthesis of medicinal compounds and drug design	chapters 3 to 10	Apply	DEEPA JOSE
4	1.4	Utilize the mechanism of organic reactions for predicting the reactivity and orientation and thus by facilitating the synthesis and design of medicinal compounds	chapter 11	Create	DEEPA JOSE
5	1.4	Prepare, purify, analyze and estimate the medicinal compounds	chapter 16	Analyze	DEEPA JOSE

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CO-PO Mapping

Institute		Nirmala College of Pharmacy, Muvattupuzha													
Course		Pharm D													
Batch		2022-2028													
Semester		1													
Subject		Pharmaceutical Organic Chemistry													
	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
1.4	Point : 3 Justification : by learning nomenclature the student will gain knowledge on nomenclature			Point : 3 Justification : softwares can be used for nomenclature							Point : 3 Justification : as new drugs are developed, chances to name them facilitates life long learning				
1.4	Point : 3 Justification : topic provides complete knowledge about physical properties	Point : 3 Justification : synthesis , purification and separation procedure can be planned	Point : 3 Justification : problem regarding solubility, purification and separation can be solved	Point : 3 Justification : modern tools can be used for determination of physical properties , purification and separation					Point : 3 Justification : can help the society for purification of substances useful for society	Point : 3 Justification : Environment friendly procedures can be adopted for purification process	Point : 3 Justification : prediction of physical properties based on structure helps in life long learning as new drugs are emerged				
1.4	Point : 3 Justification : gains knowledge about various chemical reaction mechanism	Point : 3 Justification : plan for the synthesis of better new drugs	Point : 3 Justification : problems related to existing drug molecules can be eliminated by modifying the structure	Point : 3 Justification : softwares can be used to help the synthesis of new drugs	Point : 2 Justification : a team of students can be assigned for the development of synthetic protocol which help them to improve their leadership skill	Point : 3 Justification : synthesis of new drugs increases professional identity	Point : 3 Justification : ethics has to be applied in synthesis compounds by avoiding toxic chemicals for synthesis, proper purification etc	Point : 3 Justification : the information gained by synthesising new drugs can be communicated to society through article publication or any other means of communication	Point : 3 Justification : drugs useful for society can be synthesised	Point : 3 Justification : environment friendly chemical can be used for synthesising harmless drugs	Point : 3 Justification : knowledge about the synthesis can be updated lifelong and can be applied				
1.4	Point : 3 Justification : gain detailed knowledge about the mechanism of reaction	Point : 2 Justification : can plan for synthesis based on the mechanism of a chemical reaction	Point : 2 Justification : problems faced while synthesising chemical moieties can be analysed and solved based on the mechanism of reaction	Point : 1 Justification : softwares such as reaction mechanism generator can be used				Point : 2 Justification : can explain the mechanisms of chemical reactions to academic group	Point : 2 Justification : newer drugs can be developed by applying the mechanism that may help the society						

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
1.4	Point : 3 Justification : gain knowledge about specified medicinal compounds	Point : 2 Justification : can plan for synthesis and assay as well as selection of a drug based on its use for a purpose	Point : 2 Justification : purity and related aspects can be analysed and related aspects can be analysed and solved	Point : 3 Justification : equipments such as HPLC, HPTLC and such analysers can be used	Point : 2 Justification : analysis and assay work can be done in a team and can be interpreted as a team effort	Point : 3 Justification : Consultancy works can be done based on the knowledge and with the expertise in handling the instruments	Point : 3 Justification : ethics can be observed while analysing the samples	Point : 2 Justification : results obtained after analysing different samples such as those available in market can be communicated to society	Point : 2 Justification : samples used by society can be synthesised, purified, tested,	Point : 2 Justification : can report the findings if a sample is found to contain any components which are harmful to environment	Point : 3 Justification : as new products are released assays and test for purity can be performed				
Average Score	3	2.5	2.5	2.6	2	3	3	2.33333333333333	2.5	2.66666666666667	3				

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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2022-2028
Semester	1
Subject	Pharmaceutical Inorganic Chemistry Theory

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO1	Explain the basic concept of the various volumetric analysis and will have a firm foundation in the fundamentals and application of current chemical and scientific theories of Analytical Chemistry	Errors + Different types of titrations	Apply	Devipriya P V
2	CO2	Demonstrate common laboratory techniques and gravimetric analysis for quantitative analysis of pharmaceuticals and to develop analytical skills	Gravimetry	Apply	Devipriya P V
3	CO3	To understand the medicinal and pharmaceutical importance of inorganic compounds	Medicinal gases, Acidifiers, Antacids, Antimicrobials, Cathartics, Trace elements, Pharmaceutical aids, Dental products and miscellaneous compounds	Understand	Devipriya P V
4	CO4	Understand the importance of limit tests	Limit test	Understand	Devipriya P V
5	CO5	Appreciate the importance of electrolytes in replacement therapy and their importance in acid base balance, applications of radioactive substances	Electrolyte replenishers + Radiopharmaceuticals	Understand	Devipriya P V

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha														
Course	Pharm D														
Batch	2022-2028														
Semester	1														
Subject	Pharmaceutical Inorganic Chemistry Theory														
	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
CO1	Point : 3 Justification : students will be able to understand the basic principles and theories involved in various types of titrations	Point : 1 Justification : Able to understand concept of various titrations for study	Point : 2 Justification : able to understand the various rules for analytical procedures	Point : 1 Justification : utilise resources for studying inorganic molecules		Point : 1 Justification : knowledge regarding quality control procedures	Point : 1 Justification : will be familiar with the fundamental analytical ethics		Point : 1 Justification : understand the inorganic molecules in everyday science		Point : 2 Justification : will be able to apply their knowledge about fundamentals in analytical chemistry				
CO2	Point : 3 Justification : students will be familiar with the laboratory procedures for analysing pharmaceuticals	Point : 2 Justification : able to understand and carry out the estimation properly using effective planning	Point : 2 Justification : able to determine the purity and stability of chemicals	Point : 1 Justification : selection of appropriate technique		Point : 2 Justification : able to develop analytical skills	Point : 2 Justification : application of pharmaceutical ethics in QC and QA	Point : 1 Justification : understand the safe use of drugs and chemicals	Point : 1 Justification : able to provide guidance with the safety of pharmaceuticals		Point : 1 Justification : plan and evaluate drug molecules				
CO3	Point : 2 Justification : attain basic knowledge about the physical and chemical characters of inorganic compounds		Point : 2 Justification : analyse the inorganic compounds for its purity	Point : 1 Justification : preparation and storage conditions needed for inorganic pharmaceuticals		Point : 2 Justification : able to have knowledge about pharmaceutical importance and uses of drugs	Point : 2 Justification : apply ethical principles while studying the inorganic pharmaceuticals	Point : 1 Justification : able to communicate about the safer use of medications	Point : 2 Justification : have an idea about the inorganic chemicals in day to day life	Point : 1 Justification : apply the knowledge in sustainability of environment	Point : 1				
CO4	Point : 2 Justification : able to understand the concept of qualitative and quantitative limit test	Point : 1 Justification : Test procedures to detect impurities	Point : 2 Justification : identification of cations and anions	Point : 1 Justification : selection of appropriate procedure for testing purity of sample	Point : 1 Justification : To develop organisational skills for a lead role in manufacturing sector	Point : 1 Justification : role in quality checking of samples		Point : 1 Justification : communicate regarding quality and quantity of impurities in chemicals	Point : 1 Justification : harmful impurities can be identified and check the impurities are within the limit or not	Point : 1 Justification : can identify the factors affecting test					
CO5	Point : 3 Justification : knowledge on electrolyte balance within the body	Point : 1 Justification : preparation and fluid and electrolyte replenishers	Point : 2 Justification : analyse the problems regarding	Point : 1 Justification : devices used for detection and measurement of radioactivity		Point : 3 Justification : students will have an idea about the uses of electrolyte replenishers and	Point : 3 Justification : apply the ethical principles while studying the safer use of radiopharmaceuticals		Point : 2 Justification : provide knowledge to society in the	Point : 2 Justification : impact of radiopharmaceuticals in the environment sustainability	Point : 2 Justification : knowledge about basic nucleus				

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
			imbalanced condition			regulators, use of radiopharmaceuticals			safer use of drugs						
Average Score	2.6	1.25	2	1	1	1.8	2	1	1.4	1.33333333333333	1.5				

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Nirmala College of Pharmacy, Muvattupuzha

Muvattupuzha P.O Ernakulam District Kerala, India, Pin:686661

Email : info@nirmalacp.org, Phone : 04852836888

Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2022-2028
Semester	1
Subject	Human Anatomy and Physiology Practical

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO P 1.1	Explain the gross morphology, structure and functions of various tissues and organs of the human body with the help of models and tissue slides	Study of tissues of human body (a) Epithelial tissue (b) Muscular tissue (c) Connective tissue (d) Nervous tissue. Study of various systems with the help of charts, models & specimens (a) Cardiovascular system. (b) Respiratory system. (c) Digestive system. (d) Urinary system. (e) Nervous system. (f) Special senses. (g) Reproductive system	Understand	Elayath Parvathy Murali
2	CO P 1.2	Record the normal physiologic constants like blood pressure, body temperature, pulse rate, etc. for analyzing the homeostatic state of body	Determination of (a) Blood Pressure. (b) Blood group.	Apply	Elayath Parvathy Murali
3	CO P 1.3	Analyze and interpret the pathological states associated with blood cells	Determination of W.B.C. count, R.B.C. and differential count of blood	Analyze	Elayath Parvathy Murali
4	CO P 1.4	Correlate basic physiology with the pathophysiological outcomes that may be encountered in the clinical setting	Determination of (a) Erythrocyte Sedimentation Rate. (b) Hemoglobin content of Blood. (c) Bleeding time & Clotting time.	Analyze	Elayath Parvathy Murali
5	CO P 1.5	Correlate the anatomical features of bones in normal and bone anomalies	Study of various systems with the help of charts, models & specimens (a) Skeleton system part I-axial skeleton. (b) Skeleton system part II- appendicular skeleton.	Understand	Elayath Parvathy Murali
6	CO P 1.6	Explain how the family planning devices are working	Study of different family planning appliances and pregnancy diagnosis test.	Understand	Elayath Parvathy Murali

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CO-PO Mapping

Institute		Nirmala College of Pharmacy, Muvattupuzha									
Course		Pharm D									
Batch		2022-2028									
Semester		1									
Subject		Human Anatomy and Physiology Practical									
	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO
CO P 1.1	Point : 3 Justification : The student will gain an in-depth knowledge on the gross morphology, structure and functions of various tissues and organs of the human body	Point : 1 Justification : Proper planning is essential before studying and preparing for the experiments.	Point : 1 Justification : Ability to recognise the abnormalities in anatomy of different organs and tissues	Point : 1 Justification : Handling modern tools while doing experiment	Point : 1 Justification : Able to perform group discussions	Point : 2 Justification : Providing awareness to common public regarding basic health issues.	Point : 3 Justification : Making prompt decision while coming across any issues regarding human physiology.	Point : 2 Justification : To write reports and documents on health issues and diseases.	Point : 2 Justification : Propagate awareness to the society especially during the threat of communicable diseases.	Point : 1 Justification : Understand and avoid the harmful medicines that could harm the basic structure and function of a tissue, and organs.	Point Just Upd new dise rem
CO P 1.2	Point : 3 Justification : A firm grip on homeostatic state of body helps in daily life situation.	Point : 2 Justification : Time management is highly essential while recording body temperature and blood pressure.	Point : 1 Justification : Ability to solve problems tactically in case of changes.	Point : 1 Justification : Effectively use modern tools to record blood pressure and body temperature.		Point : 2 Justification : To communicate effectively and create awareness among public on how to deal with emergency.	Point : 2 Justification : Refusing any claim or commission to promote fake companies that could hamper the accurate reading.	Point : 1 Justification : To prepare a perfect report on blood pressure and body temperature reading..	Point : 1 Justification : To give suggestions to the society on how to deal with sudden variation in blood pressure.	Point : 2 Justification : Knowing and preventing human deeds that could harm nature and in-turn affects their own body temperature and components.	Point Just Kee the i char hap; med reco pres body .
CO P 1.3	Point : 3 Justification : Practical knowledge on the constituents of blood cells and the associated diseases.	Point : 2 Justification : Both resource management and time management is essential while recording the constituents of blood cells.	Point : 2 Justification : Critically evaluating and analyzing the diseases that could affect the blood cells.	Point : 2 Justification : Handling highly advanced instruments to trace the slightest variations in blood cells.		Point : 2 Justification : Understanding the value of the profession and give awareness to the public at appropriate time.	Point : 1 Justification : Applying ethical principles while analyzing blood cells and recording the diseases.	Point : 2 Justification : Communicating effectively without creating panic on how to deal with diseases.	Point : 1 Justification : Ability to handle both the sensitivity of the society and the norms of the government while facing with any practical difficulties.	Point : 2 Justification : Demonstrating the need for pollution free society to bar the growth of diseases.	Point Just Kee eval exar new reco cour relat cons
CO P 1.4	Point : 3 Justification : Knowledge on how to correlate basic physiology with the pathophysiological outcomes.	Point : 2 Justification : Time management, resource management and organization are highly essential in this process.	Point : 3 Justification : Critical and rational thinking is important while engaging in practical experiment.	Point : 2 Justification : Handling sophisticated tools in determining the physiological state of human body.		Point : 1 Justification : Delivering their professional values by appropriately communicating with the public about the physiological condition of a patient.	Point : 2 Justification : Honoring personal as well as ethical values while coming across a problem.	Point : 2 Justification : Perfectly documenting the physiological and the pathophysiological outcomes of the body.	Point : 1 Justification : Providing basic and general awareness to the society on health issues.	Point : 2 Justification : Correlating how sustainable environment is necessary to have a healthy life and communicating this fact to the society.	Point Just asse usin effec iden the r path outc hum
CO P 1.5	Point : 3 Justification : Basic pharmaceutical knowledge on anatomical features of bones and bone anomalies.	Point : 1 Justification : Organizational and memorizing skills are required while studying the bones.	Point : 2 Justification : By applying the principles of scientific knowledge, the deformities in the bones can be traced out.	Point : 3 Justification : Learning to select appropriate methods to understand the structure of bones.		Point : 2 Justification : To make common public understand about the bone and its basic functions when dealing with any emergencies.	Point : 2 Justification : Applying ethical and legal principles whenever any practical situation comes.	Point : 3 Justification : Communicating the importance of exercise and other health practices to keep the consistencies of bone.		Point : 2 Justification : Analyzing and avoiding the consumption of harmful substances that could affect bones and lead to bone anomalies.	Point
CO P 1.6	Point : 3 Justification : A sound knowledge in the working pattern of family planning devices and pregnancy diagnostic kit.	Point : 3 Justification : Time management, resource management and organization are highly essential in this process.	Point : 2 Justification : Prior planning helps to prevent unwanted pregnancies.			Point : 2 Justification : As a healthcare professional help the patients to know family planning methods.	Point : 2 Justification : Making prompt decision while coming across any issues regarding human physiology	Point : 2 Justification : The physiological constants and mechanisms can be properly communicated.	Point : 2 Justification : Proper Reasoning and intellectual capacity in health care facilitates to contribute significantly to the needy people in the society.		Point Just Resu- up; facts body asse
Average Score	3	1.83333333333333	1.83333333333333	1.8	1	1.83333333333333	2	2	1.4	1.8	2.33



Nirmala College of Pharmacy, Muvattupuzha

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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2022-2028
Semester	1
Subject	Pharmaceutics Practical

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	PD1	CO1	Handle a prescription by identifying pharmaceutical/medical terminology, abbreviations and symbols commonly used in the prescribing and dispensing of medications in the pharmacy.	Remember	Flowerlet Mathew
2	PD2	CO2	Achieve skill in the operation of common pharmaceutical measuring, weighing and compounding devices.	Apply	Flowerlet Mathew
3	PD3	CO3	Classify different dosage forms and apply principles of pharmaceutical science in formulation and dispensing of various conventional dosage forms.	Understand	Flowerlet Mathew
4	PD4	CO4	Select proper containers for packaging and will have the capability to correctly label pharmaceutical preparations.	Apply	Flowerlet Mathew

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2022-2028
Semester	1
Subject	Pharmaceutics Practical

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning
PD1	Point : 3 Justification : Attains pharmacy knowledge	Point : 2 Justification : Proper planning is required while handling a prescription	Point : 2 Justification : Information are applied systematically while prescriptions are dispensed		Point : 3 Justification : Proper handling of prescriptions makes one a responsible citizen	Point : 3 Justification : Pharmacists are health promoters	Point : 2 Justification : Handling of prescription is done in an ethical way	Point : 3 Justification : Learns how to Communicate with prescriber and patients while interpreting and dispensing prescription	Point : 3 Justification : It is the social responsibility of pharmacist to dispense the correct dosage form		Point : 3 Justification : For handling a prescription, one must have a thorough knowledge about drugs and this encourages the pharmacist to upgrade
PD2	Point : 3 Justification : Attains pharmacy knowledge	Point : 3 Justification : Compounding require proper planning	Point : 2 Justification : Compounding requires analysis and evaluation of information		Point : 2 Justification : Appropriate way of compounding can be carried out only by a an efficient pharmacist	Point : 2 Justification : Compounding a prescription is not mere weighing and mixing, but it has to be done in a professional way.			Point : 2 Justification : Compounding is done accurate so that the quality of drug product is not compromised		
PD3	Point : 3 Justification : Attains pharmacy knowledge	Point : 3 Justification : For formulation of any dosage form in stipulated time, proper planning is required	Point : 3 Justification : Utilization of principles is required for formulation of any dosage form		Point : 3 Justification : Preparations done in groups improve the leadership skills in students	Point : 2 Justification : Formulators of dosage forms correctly are promoters of health	Point : 2 Justification : Formulation of dosage forms is done in an ethical frame work	Point : 2 Justification : Effective communication is required while formulating a dosage form	Point : 2 Justification : A product is formulated in such a way that it satisfies health, safety and legal issues	Point : 3 Justification : A product is formulated in such a way that its adverse effects on environment is minimized	Point : 3 Justification : Formulation of dosage forms necessitates continuous learning
PD4	Point : 3 Justification : Attains pharmacy knowledge	Point : 3 Justification : Container selection, proper labelling planning is necessary	Point : 2 Justification : Applying information is necessary for labelling and packaging of pharmaceuticals		Point : 3 Justification : Labelling of products require thorough knowledge and awareness about different schedules and it has to be done with high responsibility	Point : 2 Justification : Labelling of products require thorough knowledge and awareness about different schedules and it has to be done in a professional way		Point : 2 Justification : Labelling facilitates communication to the patient regarding use and storage of medicinal products	Point : 3 Justification : A product is packed and labelled in such a way that it satisfies health, safety and legal issues	Point : 3 Justification : A product is packed and labelled in such a way that it satisfies health, safety, and legal issues	Point : 3 Justification : For packing and labelling, up to date information is necessary
Average Score	3	2.75	2.25		2.75	2.25	2	2.33333333333333	2.5	3	3



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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2022-2028
Semester	1
Subject	Medicinal Biochemistry Practical

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO 1	Demonstrate understanding on principles that govern the nature of various bio-molecules		Understand	Saranya T S
2	CO 2	Use basic laboratory skills and apparatus to obtain reproducible data from biochemical experiments.		Apply	Saranya T S
3	CO 3	Knowledge on Application of biochemical techniques		Apply	Saranya T S
4	CO 4	Develop understanding the significance of biochemical tests in clinical practice.		Apply	Saranya T S

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2022-2028
Semester	1
Subject	Medicinal Biochemistry Practical

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning
CO 1	Point : 1 Justification : Have understanding on the different types, nature, and composition, of various biomolecules	Point : 3 Justification : Able to plan on identifying a specific biomolecule based on its chemical or biochemical nature.	Point : 2 Justification : Able to determine and categorize the end results on levels of biomolecule as either normal or abnormal.	Point : 2 Justification : Aware of various equipment used in performing biochemical tests.	Point : 3	Point : 2 Justification : Able to demonstrate importance of the nature of biomolecules for interpreting results in patients with various medical condition	Point : 2 Justification : Demonstrates understanding on the nature of biomolecules for interpreting results that can vary from patient to patient.	Point : 1 Justification : Able to communicate on the nature of biomolecules and their interpreting results.	Point : 2 Justification : Understands the importance of pharmacists in interpreting lab results and their impact on society	Point : 2 Justification : Understands the nature of biochemical's and hazards they can cause if not disposed safely.	Point : 3 Justification : Understands the fast changing requirements in biochemistry and discovery of newer agents to keep pace with grooving health industry
CO 2	Point : 3 Justification : Demonstrate basic laboratory skills to arrive at reproducible results	Point : 2 Justification : Plan adequately to get correct repetitive results	Point : 3 Justification : Ability to identify and rectify reasons for not getting similar tests with same experiment and sample.	Point : 3 Justification : Aware of modern tools to perform biochemical experiments.	Point : 1	Point : 3 Justification : Understand the need to get reproducible results to obtain reproducible results.	Point : 1 Justification : Understands the importance of maintaining valid reproducible values to get accurate results	Point : 3 Justification : Able to communicate on the basic skills to perform lab adequately	Point : 1 Justification : Understands the impact of accurate results in interpreting health requirements of society	Point : 3 Justification : It's necessary to understand basic lab skills for adequate keeping of environment.	Point : 1 Justification : Lifelong learning for improving basic skills and attain more knowledge for performing complex lab is a requirement for every students which is well understood.
CO 3	Point : 2 Justification : Knowledge on importance of biochemical techniques in estimating various biomolecules	Point : 3 Justification : Able to plan on the apt biochemical technique to use in order to arrive at the result.	Point : 1 Justification : Ability to choose apt technique to avoid problems while doing experiments.	Point : 1 Justification : Aware of multiple sample analyzers for electrolyte or biomolecule determination in blood	Point : 3 Justification : Able to demonstrate biochemical techniques when experiments are conducted in group.	Point : 1 Justification : Able to provide interpretation for the imbalance of electrolytes or biomolecules as they are identified by biochemical tests	Point : 2 Justification : Understands the role of patient in choosing the technique when it comes to cost of different tests and need to maintain confidentiality	Point : 1 Justification : Able to communicate on various biochemical techniques	Point : 2 Justification : Understands the need to choose the apt and cost effective biochemical's to diagnose a medical condition and advice the e microbiologist on the same.	Point : 2 Justification : Understands the need to use a technique that safer to environment when possible.	Point : 3 Justification : Understands the need to upgrade knowledge on various newer techniques to provide adequate patient care.
CO 4	Point : 1 Justification : Has enough knowledge in interpreting lab tests	Point : 1 Justification : Developed ability to plan as to which tests are to be prioritized to identify the biomolecule	Point : 1 Justification : Able to understand the problem as to why the labs test provide certain values in biochemical tests.	Point : 2 Justification : Aware of modern equipment that provides better results compared to older ones.	Point : 2	Point : 3 Justification : Understands the requirement in providing interpretations to patients or other health care professionals regarding lab tests as required	Point : 2 Justification : Understands that confidentiality is required at all circumstances unless otherwise consent from patient is received.	Point : 2 Justification : Able to communicate regarding various lab result interpretation.	Point : 2 Justification : Understands the part of a pharmacist in understanding lab results and therefore providing adequate therapy results.	Point : 2 Justification : Able to consider the significance of a test and ensure safe lab environment keeping for good health	Point : 1 Justification : Understands that lifelong learning is required to update ones knowledge on current research and development and their application in clinical practice.
Average Score	1.75	2.25	1.75	2	2.25	2.25	1.75	1.75	1.75	2.25	2



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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2022-2028
Semester	1
Subject	Pharmaceutical Organic Chemistry Practical

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	1.4 P (Practicals)	Synthesize organic compounds applying the various chemical reactions	Minor	Apply	DEEPA JOSE
2	1.4 P (Practicals)	Separate the chemical compounds based on physical and chemical properties	Minor	Apply	DEEPA JOSE
3	1.4 P (Practicals)	Purify the chemical compounds based on various physical properties.	Minor	Apply	DEEPA JOSE
4	1.4 P (Practicals)	Apply the knowledge and subject specific skill to perform the qualitative analysis of organic compounds	Major	Analyze	DEEPA JOSE
5	1.4 P (Practicals)	Use atomic and stereomodels to explain the structure of molecules.	Minor	Understand	DEEPA JOSE

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2022-2028
Semester	1
Subject	Pharmaceutical Organic Chemistry Practical

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	P
1.4 P (Practicals)	Point : 3 Justification : Gains knowledge about the principle and procedure for synthesising organic compounds	Point : 2 Justification : Use atomic and stereomodels to explain the structure of molecules.	Point : 3 Justification : problems faced in each step can be solved by changing the procedures	Point : 3 Justification : microwave oven can be used for synthesis			Point : 2 Justification : by synthesising harmless products		Point : 3 Justification : compounds beneficial to society can be synthesised	Point : 2 Justification : Environment friendly products can be synthesised	Point : 2 Justification : newer techniques can be applied for synthesising better compounds which require life long learning	
1.4 P (Practicals)	Point : 3 Justification : complete knowledge about separation techniques is gained by students	Point : 3 Justification : helps to plan for the best separation techniques and suitable reagents, solvents etc	Point : 2 Justification : problems faced while separating can be identified and corrected	Point : 2 Justification : demonstration of modern tools such as HPLC for separation	Point : 2 Justification : experiments done in a group which helps to mould the leadership skills		Point : 1 Justification : use efficient methods for separation		Point : 2 Justification : can help the society by separating and purifying products useful for them	Point : 2 Justification : By separating hazardous chemicals from a mixture	Point : 2 Justification : learn about modern separation techniques	
1.4 P (Practicals)	Point : 3 Justification : Gains knowledge about various purification techniques based on physical properties	Point : 2 Justification : can plan for the purification techniques to be applied	Point : 2 Justification : problems occurred during purification can be solved based on the physical properties and chemical nature	Point : 2				Point : 1 Justification : Teamwork needs communication	Point : 1 Justification : purify the compounds beneficial for society	Point : 1 Justification : purify with environment friendly methods	Point : 1 Justification : learn about latest purification techniques	
1.4 P (Practicals)	Point : 3 Justification : gain knowledge about various chemical properties of compounds	Point : 3 Justification : planning is essential for the schematic and systematic analysis of organic compounds		Point : 1 Justification : use of modern tools for determining MP and other physical properties		Point : 1 Justification : can analyse and find out the unknown compounds	Point : 1 Justification : ethics can be observed while performing the analysis and submitting the report	Point : 1 Justification : the report can be communicated to the authority in proper format		Point : 1 Justification : CAN ANALYSE AND FIND OUT THE POLLUTANTS		
1.4 P (Practicals)	Point : 3 Justification : Gain knowledge about stereomodels			Point : 1 Justification : can use modern tools							Point : 1 Justification : learn about the recent advancement in stereo models	
Average Score	3	2.5	2.33333333333333	1.8	2	1	1.33333333333333	1	2	1.5	1.5	



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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2022-2028
Semester	1
Subject	Pharmaceutical Inorganic Chemistry Practical

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO1	perform the limit test to determine the impurities in pharmaceuticals	Perform the limit test for chloride, sulphate, iron, Arsenic, heavy metals to test whether the impurities are within the limit or not	Apply	Devipriya P V
2	CO2	Perform the assay for chemical substances and standardise the titrant	determine the percentage purity of NH ₄ Cl, H ₂ O ₂ , CuSO ₄ , FeSO ₄ , Calcium gluconate, Boric acid	Apply	Devipriya P V
3	CO3	Perform the test for identity and purity of pharmaceuticals		Apply	Devipriya P V
4	CO4	Preparation of pharmaceuticals	Prepare Boric acid and Potash alum	Apply	Devipriya P V

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2022-2028
Semester	1
Subject	Pharmaceutical Inorganic Chemistry Practical

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning
CO1	Point : 3 Justification : students will be able to analyse the impurities present in a sample	Point : 2 Justification : can evaluate the presence of impurities	Point : 2 Justification : determine the limit of impurities			Point : 2 Justification : identification and analysis of samples	Point : 2 Justification : harmful impurities can be identified		Point : 2 Justification : helps in understanding and analysing drugs	Point : 1 Justification : can be used for the sustainability of environment	Point : 1 Justification : can be able to determine the purity of drugs
CO2	Point : 3 Justification : able to determine the percentage content of drugs	Point : 3 Justification : will be able to understand and plan to analyse various drug samples quantitatively	Point : 3 Justification : Analysing the active constituents by visual end point determination method	Point : 2 Justification : will be able to determine the endpoint by electrochemical method	Point : 1 Justification : plan to analyse samples	Point : 2 Justification : identification of percentage content of pharmaceuticals	Point : 2 Justification : to test the quality of samples		Point : 3 Justification : quality checking and quality assurance of drugs		Point : 1 Justification : check the purity of newly invented chemicals
CO3	Point : 3 Justification : able to identify the samples	Point : 2 Justification : will be able to plan and check the purity	Point : 3 Justification : qualitative analysis of samples	Point : 2 Justification : use modern instrumental tools for checking purity of chemicals	Point : 2 Justification : plan for quality checking	Point : 1 Justification : determination and identification of unknown samples	Point : 1 Justification : analyse samples for adulteration and substitutions	Point : 1 Justification : able to communicate with manufacturing industries	Point : 3 Justification : assess the health and safety of society	Point : 1 Justification : environmental development	Point : 1 Justification : identification of newly developed products and chemicals
CO4	Point : 2 Justification : Get a detailed idea about the laboratory preparation of drugs	Point : 2 Justification : plan and synthesis compounds		Point : 2 Justification : preparation using advanced instruments	Point : 2 Justification : bulk production of drugs in industries	Point : 3 Justification : plays a major role in preparation of pharmaceuticals	Point : 1 Justification : become familiar with safety ethics	Point : 2 Justification : Able to communicate regarding quantity and quality of prepared products	Point : 1 Justification : utilize the knowledge for improvement in health and society		
Average Score	2.75	2.25	2.66666666666667	2	1.66666666666667	2	1.5	1.5	2.25	1	1

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2.6.1:
Course Outcomes (COs)

Program: pharm D

Batch: 2nd year





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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2021-2027
Semester	2
Subject	Pathophysiology

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO1	Knowledge of the etiology of various conditions		Understand	ANU MOL SAJU
2	CO2	Understanding of basic pathophysiological mechanisms of various conditions with reference to its pharmacological applications		Understand	ANU MOL SAJU
3	CO3	Thorough knowledge of the signs and symptoms of various conditions		Understand	ANU MOL SAJU
4	CO4	Understand the complications of various conditions, transmission and preventive measures		Understand	ANU MOL SAJU
5	CO5	Acquire skills and knowledge for patient and community education on the various diseases		Analyze	ANU MOL SAJU

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2022-2028
Semester	2
Subject	Pathophysiology

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
CO1	Point : 1 Justification : this chapter deals with the etiology of various disease conditions		Point : 2 Justification : to analyse the problem about the etiology of various disease conditions		Point : 2 Justification : to acquire leadership skills about the etiology of various disease conditions		Point : 2 Justification : To acquire pharmaceutical ethics related to the knowledge about etiology of various diseases	Point : 1 Justification : To acquire the communication between acquiring the etiology of various disease conditions	Point : 2 Justification : To acquire knowledge about various diseases and the pharmacist and society			Point : 2 Justification : this chapter deals with the etiology of various disease conditions		Point : 2 Justification : to analyse the problem about the etiology of various disease conditions	Point : 2 Justification : to analyse the problem about the etiology of various disease conditions
CO2	Point : 1 Justification : to acquire pharmacy knowledge about the various pathophysiological conditions and pharmacological applications	Point : 2 Justification : to acquire planning abilities about the pathophysiological mechanisms of various conditions	Point : 2 Justification : To acquire knowledge about the problem analysis about basic pathophysiological mechanisms of various conditions		Point : 2	Point : 2 Justification : understand the basic pathophysiological mechanisms of various conditions		Point : 2 Justification : to acquire communication between pharmacist to gain knowledge about understanding pathophysiological mechanisms				Point : 1 Justification : to acquire pharmacy knowledge about various pathophysiological conditions and pharmacological applications	Point : 2 Justification : to acquire planning abilities about the pathophysiological mechanisms of various conditions		Point : 2 Justification : to acquire planning abilities about the pathophysiological mechanisms of various conditions
CO3	Point : 1 Justification : to know about signs and symptoms		Point : 2 Justification : to assess the problem analysis about signs and symptoms		Point : 2 Justification : to assess the problem analysis about signs and symptoms		Point : 2 Justification : to assess the pharmaceutical ethics while assessing the signs and symptoms		Point : 3 Justification : To assess the relationship between the pharmacist and society			Point : 1 Justification : to know about signs and symptoms		Point : 2 Justification : to assess the problem analysis about signs and symptoms	Point : 2 Justification : to assess the problem analysis about signs and symptoms
CO4	Point : 2 Justification : pharmacy knowledge about understanding about complications transmission and preventive measures		Point : 2 Justification : to attain problem analysis about the transmission and preventive measures		Point : 2 Justification : to attain leadership skills about the transmission preventive measures of various diseases		Point : 2 Justification : to include pharmaceutical ethics while understand transmission preventive measure of various diseases	Point : 1 Justification : to acquire communication between the complication and transmission of diseases	Point : 2 Justification : to understand the relationship between the pharmacist and society about the complications of diseases			Point : 1 Justification : pharmacy knowledge about understanding about complications transmission and preventive measures		Point : 2 Justification : to attain problem analysis about the transmission and preventive measures	Point : 2 Justification : to attain leadership skills about the transmission preventive measures of various diseases
CO5	Point : 2 Justification : to acquire pharmacy knowledge to about skills and knowledge for patient and community		Point : 2 Justification : To acquire skills and knowledge for patient and community		Point : 1 Justification : To acquire leaderskills about skills and knowledge for patient and community		Point : 2 Justification : To know pharmaceutical ethics to acquire skills knowledge for patients and community		Point : 1 Justification : To know the relationship between pharmacist and society to know the knowledge for patient and community education			Point : 2 Justification : to acquire pharmacy knowledge to about skills and knowledge for patient and community		Point : 2 Justification : To acquire skills and knowledge for patient and community	Point : 2 Justification : To acquire leaderskills about skills and knowledge for patient and community

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
Average Score	1.4	2	2		1.8	2	2	1.33333333333333	2			1.4	2	2	2

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Nirmala College of Pharmacy, Muvattupuzha

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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2021-2027
Semester	2
Subject	Pharmaceutical Microbiology Theory

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO1	On successful completion of this COURSE, students should be able to: Understand methods of classification, identification, cultivation and preservation of various microorganisms		Understand	Vidya Peter
2	CO2	Understand the principles and procedures of sterility testing as per IP, methods of sterilization, and microbiological quality control of pharmaceuticals		Understand	Vidya Peter
3	CO3	Analyze the role of disinfectants in microbiology and pharmaceutical industry		Apply	Vidya Peter
4	CO4	Discuss the concepts of immunology and interpolate the same in disease diagnosis Interpret the results of antimicrobial study of various pharmaceuticals, and acquired knowledge of various Infectious disease		Understand	Vidya Peter
5	CO5	To understand the mode of transmission of disease causing microorganism, symptoms of disease, and treatment aspect		Understand	Vidya Peter

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CO-PO Mapping

Institute		Nirmala College of Pharmacy, Muvattupuzha													
Course		Pharm D													
Batch		2021-2027													
Semester		2													
Subject		Pharmaceutical Microbiology Theory													
	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
CO1	Point : 3 Justification : Imparts knowledge on the physical requirements and growth factors required for microbial growth	Point : 2 Justification : Plan effectively growing desired microbe in a suitable medium	Point : 2 Justification : Analyse the problems like insufficient bacterial growth in a given media	Point : 1 Justification : Modern tools are required in manufacturing growth media		Point : 2 Justification : Role of pharmacist as health care professional become evident when he can counsel patients about conditions favoring spread of infections	Point : 1 Justification : Identification of correct infectious agent by culturing it, is possible		Point : 1 Justification : Inhibition of Spread of communicable disease need understanding of growth of microbes						
CO2	Point : 3 Justification : Equip with the knowledge of bacterial motility and its differentiation based on staining characteristics and biochemical reactions	Point : 2 Justification : Plan for the correct identification of unknown microorganism by staining and biochemical reactions	Point : 2 Justification : Analyse the problems in the identification of microbes	Point : 1 Justification : Modern microscopic techniques are used in identification of microbes		Point : 2 Justification : Characterization of bacteria as gram positive or negative help pharmacist in selection of correct antimicrobial for treatment									
CO3	Point : 3 Justification : Imparts knowledge on aseptic techniques in microbiology	Point : 2 Justification : Plan for effective manufacture of parenteral products	Point : 2 Justification : Analyse the problems in aseptic manufacturing like failure of test for sterility	Point : 1 Justification : Modern tools like uv sterilizer are part of aseptic cabinets used											
CO4	Point : 3 Justification : Gain knowledge on various aspects of sterility test, sensitivity test and assay of antimicrobials.	Point : 2 Justification : Plan for determination of sterility of given pharmaceutical product, sensitivity of microbe to given antibacterial agent and determination of potency of given antibiotic	Point : 2 Justification : Analyse the problems in selection of suitable antibiotic for given infection	Point : 1 Justification : Modern tools are used in microbial assay like turbidimetry method			Point : 1 Justification : Right antibiotic for right infection and thereby preventing irrational prescriptions and development of antibiotic resistance		Point : 1 Justification : Rational antibiotic selection prevent spread of antibiotic resistance and hence gain in public health scenario						
CO5	Point : 3 Justification : Impart knowledge on different	Point : 2 Justification : Plan for correct method of sterilization to be	Point : 1 Justification : Modern tools are used in microbial	Point : 1 Justification : Automated autoclaves and		Point : 1 Justification : Thorough understanding of aseptic handling can			Point : 1 Justification : Help to ensure sterility in manufacture of						

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
	methods of sterilization	opted for given pharmaceutical product.	assay like turbidimetry method	tunnel oven are examples of modern tools for sterilization		make the pharmacist aware of preventive measure for spread of infection			medicaments and prevent infection						
Average Score	3	2	1.8	1		1.6666666666667	1		1						

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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2021-2027
Semester	2
Subject	Pharmacognosy & Phytopharmaceuticals Theory

SI.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO1	Describe the evolution & scope of pharmacognosy, plant cell and its inclusions, sources of crude drugs & will be able to classify crude drugs based on different parameters.	Describes the basic concepts of pharmacognosy, defines the terminologies covered under pharmacognosy, basic idea on plant cell, generalizes the classification of crude drugs with suitable examples that are of pharmacognostic importance, elaborates the development of pharmacognosy through various periods and stages, emphasizes the scope of pharmacognosy in pharmaceutical areas.	Understand	Lins Mary Joy
2	CO2	Gain knowledge over medicinal uses of various phytoconstituents and learn the pharmacognosy of crude drugs with these phytoconstituents	Gain idea about various primary and secondary metabolites of therapeutic importance and also gain idea on macroscopical and microscopical features of crude drugs which in turn helps to confirm the identity of the drug and to detect adulteration if any.	Evaluate	Lins Mary Joy
3	CO3	Discuss the importance of various parameters related to cultivation of medicinal plants, collection, processing of and storage of crude drugs having therapeutic action	Able to explain various intrinsic and extrinsic factors affecting cultivation and also will be able to explain the different methods of collection, processing and storage of crude drugs and their importance.	Understand	Lins Mary Joy
4	CO4	Gain knowledge on various plant fibers used in surgical dressings and related products	Able to describe the sources, uses and method of preparation of various plant fibres	Understand	Lins Mary Joy
5	CO5	Gain knowledge about the adulteration in crude drugs.	able to explain the possible types of adulteration and the need to detect this.	Understand	Lins Mary Joy

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Nirmala College of Pharmacy, Muvattupuzha

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2021-2027
Semester	2
Subject	Pharmacognosy & Phytopharmaceuticals Theory

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
CO1	Point : 3 Justification : Able to explain all basic concepts of pharmacognosy and classification.		Point : 1 Justification : Able to classify a group of drugs after fixing a suitable criteria	Point : 1 Justification : Able to explain modern methods of classification like chaemotaxonomical and serotaxonomical classification		Point : 1 Justification : able to gain an idea about various scope of pharmacognosy and the profession. identity.	Point : 1 Justification : ble to gain an idea about various scopes of pharmacognost and the need to follow ethics in in profession.	Point : 3 Justification : Able to explain all the basic concepts to the	Point : 2 Justification : Able to identify the role of pharmacist in society after studing pharmacognosy.						
CO2															
CO3															
CO4															
CO5															
Average Score	3		1	1		1	1	3	2						



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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2021-2027
Semester	2
Subject	Pharmacology-I

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	PD 2.4.1	After successful completion of the course student should have an in depth knowledge of general pharmacological aspects like: pharmacokinetic and pharmacodynamic properties of drugs	Unit 1-General Pharmacology	Apply	Arya V S
2	PD 2.4.2	After completion students should understand the pharmacology of drugs acting on ANS and CNS	Unit 3 and 4- ANS and CNS drugs	Understand	Arya V S
3	PD 2.4.3	After completion of the course students should know the pathophysiology and pharmacology of drugs acting against CVDs	Unit 3- Pharmacology of Drugs acting on Cardiovascular System	Understand	Arya V S
4	PD 2.4.4	After completion the students should acquire the knowledge of drugs useful in respiratory system disorders	Unit 5-Pharmacology of drugs acting on respiratory system	Understand	Arya V S
5	PD 2.4.5	To understand the pharmacology of drugs useful in hormonal imbalance or deficiency associated conditions	Unit 6-Pharmacology of hormonal drugs	Remember	Arya V S
6	PD 2.4.6	Discuss pharmacology of autotoxins	Unit 7-Pharmacology of autotoxins	Understand	Arya V S

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2021-2027
Semester	2
Subject	Pharmacology-I

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
PD 2.4.1	Point : 3 Justification : Basic knowledge of the general pharmacological aspects are important in the practicing field of pharmacy especially in drug development	Point : 1 Justification : Knowledge of drugs will help to plan the right treatment for the right person without any medication errors	Point : 2 Justification : Must be able to identify the problems facing in the phases of drug developments	Point : 2 Justification : An ability to independently carry out research and development work utilizing modern tools	Point : 2 Justification : Active participation in seminars and group discussions will help to improve the leadership skills	Point : 2 Justification : An ability to lead in terms of team building, planning, motivating and ethically executing professional responsibilities and establish professional identity in society		Point : 2 Justification : Proper understanding of the concepts will reflect with effective communication	Point : 2 Justification : Right knowledge may help to serve the society in right way by avoiding human errors	Point : 2 Justification : An ability to comprehend the impact of the pharmaceutical solutions in societal and environmental context	Point : 2 Justification : Recognize the need for and have the preparation and ability to engage in independent and life long learning				
PD 2.4.2	Point : 3 Justification : Basic knowledge about the current therapeutic medication in management of disease is essential in pharmacy field	Point : 2 Justification : Knowledge of drugs will help to plan the right treatment for the right person without any medication errors	Point : 2 Justification : must be able to identify the right medication for right patients to avoid the medication errors	Point : 2 Justification : An ability to independently carry out research and development work utilizing modern tools	Point : 1 Justification : Active participation in seminars and group discussions will help to improve the leadership skills	Point : 2 Justification : An ability to lead in terms of team building, planning, motivating and ethically executing professional responsibilities and establish professional identity in society		Point : 2 Justification : Proper understanding of the concepts will reflect with effective communication	Point : 2 Justification : Right knowledge may help to serve the society in right way by avoiding human errors	Point : 2 Justification : An ability to comprehend the impact of the pharmaceutical solutions in societal and environmental context	Point : 2 Justification : Recognize the need for and have the preparation and ability to engage in independent and life long learning				
PD 2.4.3	Point : 3 Justification : Basic knowledge about the current therapeutic medication in management of disease is essential in pharmacy field	Point : 2 Justification : Knowledge of drugs will help to plan the right treatment for the right person without any medication errors	Point : 2 Justification : must be able to identify the right medication for right patients to avoid the medication errors	Point : 2 Justification : An ability to independently carry out research and development work utilizing modern tools	Point : 1 Justification : Active participation in seminars and group discussions will help to improve the leadership skills	Point : 2 Justification : An ability to lead in terms of team building, planning, motivating and ethically executing professional responsibilities and establish professional identity in society		Point : 2 Justification : Proper understanding of the concepts will reflect with effective communication	Point : 2 Justification : Right knowledge may help to serve the society in right way by avoiding human errors	Point : 1 Justification : An ability to comprehend the impact of the pharmaceutical solutions in societal and environmental context	Point : 2 Justification : Recognize the need for and have the preparation and ability to engage in independent and life long learning				
PD 2.4.4	Point : 3 Justification : Basic knowledge about the current therapeutic	Point : 2 Justification : Knowledge of drugs will help to plan the right treatment for	Point : 2 Justification : must be able to identify the right	Point : 2 Justification : An ability to independently carry out	Point : 1 Justification : Active participation in seminars and group discussions will	Point : 2 Justification : An ability to lead in terms of team building,		Point : 2 Justification : Proper understanding of the concepts will	Point : 2 Justification : Right knowledge may help to	Point : 2 Justification : An ability to comprehend the impact of the	Point : 2 Justification : Recognize the need for and have the				

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
	medication in management of disease is essential in pharmacy field	the right person without any medication errors	medication for right patients to avoid the medication errors	research and development work utilizing modern tools	help to improve the leadership skills	planning, motivating and ethically executing professional responsibilities and establish professional identity in society		reflects with effective communication	serve the society in right way by avoiding human errors	pharmaceutical solutions in societal and environmental context	preparation and ability to engage in independent and life long learning				
PD 2.4.5	Point : 3 Justification : Basic knowledge about the current therapeutic medication in management of disease is essential in pharmacy field	Point : 2 Justification : Knowledge of drugs will help to plan the right treatment for the right person without any medication errors	Point : 2 Justification : must be able to identify the right medication for right patients to avoid the medication errors	Point : 2 Justification : An ability to independently carry out research and development work utilizing modern tools	Point : 1 Justification : Active participation in seminars and group discussions will help to improve the leadership skills	Point : 2 Justification : An ability to lead in terms of team building, planning, motivating and ethically executing professional responsibilities and establish professional identity in society		Point : 2 Justification : Proper understanding of the concepts will reflect with effective communication	Point : 2 Justification : ight knowledge may help to serve the society in right way by avoiding human errors	Point : 2 Justification : An ability to comprehend the impact of the pharmaceutical solutions in societal and environmental context	Point : 2 Justification : Recognize the need for and have the preparation and ability to engage in independent and life long learning				
PD 2.4.6	Point : 3 Justification : Basic knowledge about the current therapeutic medication in management of disease is essential in pharmacy field	Point : 2 Justification : Knowledge of drugs will help to plan the right treatment for the right person without any medication errors	Point : 2 Justification : must be able to identify the right medication for right patients to avoid the medication errors	Point : 2 Justification : An ability to independently carry out research and development work utilizing modern tools	Point : 2 Justification : Active participation in seminars and group discussions will help to improve the leadership skills	Point : 2 Justification : An ability to lead in terms of team building, planning, motivating and ethically executing professional responsibilities and establish professional identity in society		Point : 2 Justification : Proper understanding of the concepts will reflect with effective communication	Point : 2 Justification : ight knowledge may help to serve the society in right way by avoiding human errors	Point : 2 Justification : An ability to comprehend the impact of the pharmaceutical solutions in societal and environmental context	Point : 2 Justification : Recognize the need for and have the preparation and ability to engage in independent and life long learn				
Average Score	3	1.83333333333333	2	2	1.33333333333333	2		2	2	1.83333333333333	2				

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Nirmala College of Pharmacy, Muvattupuzha

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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2021-2027
Semester	2
Subject	Community Pharmacy

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	PD.2.5.1	Know pharmaceutical care services		Understand	Merrin Joseph
2	PD.2.5.2	Respond to minor ailments and provide appropriate medication		Apply	Merrin Joseph
3	PD.2.5.3	know the business and professional practice management skills in community pharmacy		Understand	Merrin Joseph
4	PD.2.5.4	Know the concept of rational therapy		Understand	Merrin Joseph

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2021-2027
Semester	2
Subject	Community Pharmacy

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
PD.2.5.1	Point : 3 Justification : pharmaceutical care services will be studying	Point : 2 Justification : proper planning ability for proper service providing				Point : 3 Justification : konw soften skills and ability for handling patients	Point : 3 Justification : should be thorough with ethics to provide proper services	Point : 2 Justification : better communications skills are teaching	Point : 3 Justification : most effective for society and professional communication			Point : 2	Point : 3		Point : 2
PD.2.5.2	Point : 3 Justification : should be thorough about counselling activities					Point : 3 Justification : able to introduce personal skills			Point : 3 Justification : very effective for patients health						
PD.2.5.3	Point : 3 Justification : understand and able to provideminor /otc treatment											Point : 2		Point : 2	
PD.2.5.4	Point : 3	Point : 3		Point : 2		Point : 2			Point : 2 Justification : able to understand points to start a new pharmacy			Point : 2		Point : 3	
Average Score	3	2.5		2		2.6666666666667	3	2	2.6666666666667			2	3	2.5	2

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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2021-2027
Semester	2
Subject	Pharmacotherapeutics-I

SI.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	PD 2.6 T.4	At the end of this topic the student should be able to describe and apply the prescribing pattern for Special Populations.	General prescribing guidelines	Understand	Jobin Kunjumon Vilapurathu
2	PD 2.6 T.1	At the end of this topic the student should be able to describe the Etiopathogenesis and interpret the pharmacotherapy of diseases associated with Cardiovascular System	Cardiovascular System	Apply	Jobin Kunjumon Vilapurathu
3	PD 2.6 T.2	At the end of this topic the student should be able to describe the Etiopathogenesis and interpret the pharmacotherapy of diseases associated with Respiratory system	Respiratory system	Understand	Jobin Kunjumon Vilapurathu
4	PD 2.6 T.3	At the end of this topic the student should be able to describe the Etiopathogenesis and interpret the pharmacotherapy of diseases associated with Endocrine System	Endocrine System	Apply	Jobin Kunjumon Vilapurathu
5	PD 2.6 T.5	At the end of this topic the student should be able to describe the Etiopathogenesis and interpret the pharmacotherapy of diseases associated with Ophthalmology	Ophthalmology	Understand	Jobin Kunjumon Vilapurathu

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2021-2027
Semester	2
Subject	Pharmacotherapeutics-I

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life- long learning	PSO.01	PSO.02	PSO.03	PSO.04
PD 2.6 T.4	Point : 3 Justification : Knowledge on drugs used in special populations is essential	Point : 1 Justification : Drug treatment must be designed and planned according to Individual persons medical condition	Point : 2 Justification : Must be able to identify the individual patient problems and tailor the dosage of drugs to meet it					Point : 3 Justification : Must exhibit excellent communication skills to counsel the patient about the disease and drugs					Point : 2 Justification : Must exhibit excellent communication skills to counsel the patient about the disease and drugs		
PD 2.6 T.1	Point : 3 Justification : Knowledge on drugs used for various Cardiovascular disorders is essential	Point : 2 Justification : Drug treatment must be designed and planned according to Individual persons medical condition	Point : 2 Justification : Must be able to identify the individual patient problems and tailor the dosage of drugs to meet it					Point : 3 Justification : Must exhibit excellent communication skills to counsel the patient about the disease and drugs				Point : 3 Justification : Knowledge on drugs used for various Cardiovascular disorders is essential			
PD 2.6 T.2	Point : 3 Justification : Knowledge on drugs used for various disorders of Respiratory	Point : 2 Justification : Drug treatment must be designed and	Point : 2 Justification : Must be able to identify the individual patient					Point : 3 Justification : Must exhibit excellent communication skills to counsel the patient about						Point : 2 Justification : Must be able to identify the individual patient	

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
	System is essential	planned according to Individual persons medical condition	problems and tailor the dosage of drugs to meet it					the disease and drugs						problems and tailor the dosage of drugs to meet it	
PD 2.6 T.3	Point : 3 Justification : Knowledge on drugs used for various disorders of Endocrine system is essential	Point : 2 Justification : Drug treatment must be designed and planned according to Individual persons medical condition	Point : 2 Justification : Must be able to identify the individual patient problems and tailor the dosage of drugs to meet it					Point : 3 Justification : Must exhibit excellent communication skills to counsel the patient about the disease and drugs							Point : 2 Justification : Drug treatment must be designed and planned according to Individual persons medical condition
PD 2.6 T.5	Point : 3 Justification : Knowledge on drugs used for various diseases affecting Ophthalmic System is essential	Point : 2 Justification : Drug treatment must be designed and planned according to Individual persons medical condition	Point : 2 Justification : Must be able to identify the individual patient problems and tailor the dosage of drugs to meet it					Point : 3 Justification : Must exhibit excellent communication skills to counsel the patient about the disease and drugs				Point : 2 Justification : Must be able to identify the individual patient problems and tailor the dosage of drugs to meet it			
Average Score	3	1.8	2					3				2.5	2	2	2



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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2021-2027
Semester	2
Subject	Pharmaceutical Microbiology Practical

SI.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO1	attain basic knowledge about different equipment processing used in experimental microbiology and basic sterilization methods.		Understand	Vidya Peter
2	CO2	acquire practical knowledge for sub culturing different microorganisms and their methods of isolation		Apply	Vidya Peter
3	CO3	gain practical knowledge to identify and differentiate different microorganism and their viability		Analyze	Vidya Peter
4	CO4	achieve knowledge about antibiotics and their microbiological assay and sterility testing of different pharmaceutical product		Apply	Vidya Peter
5	CO5	earn knowledge about different biochemical tests for the identification of microorganism and bacteriological analysis of water		Understand	Vidya Peter

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Nirmala College of Pharmacy, Muvattupuzha

Muvattupuzha P.O Ernakulam District Kerala, India, Pin:686661

Email : info@nirmalacp.org, Phone : 04852836888

Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2021-2027
Semester	2
Subject	Pharmacognosy & Phytopharmaceuticals Practical

SI.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	PD2.3 P	Able to evaluate the macroscopical characters of crude drugs	Able to evaluate crude drugs macroscopically and can identify genuine drugs	Evaluate	Lins Mary Joy
2	PD2.3 P	Able to evaluate the microscopical characters of crude drugs	Able to evaluate crude drugs microscopically by histological studies and can identify genuine drugs	Evaluate	Lins Mary Joy
3	PD2.3P	Able to evaluate the microscopical characters of powdered drugs	Able to evaluate Powdered crude drugs microscopically and can identify genuine drugs	Evaluate	Lins Mary Joy
4	PD2.3 P	Able to evaluate the qualitative chemical evaluation of crude drugs	Able to evaluate crude drugs by chemical tests and can identify genuine drugs	Evaluate	Lins Mary Joy
5	PD2.3P	Able to evaluate the quantitative chemical evaluation of crude drugs	Able to evaluate crude drugs by determining chemical constants and can identify genuine drug	Evaluate	Lins Mary Joy

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2021-2027
Semester	2
Subject	Pharmacognosy & Phytopharmaceuticals Practical

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
PD2.3 P	Point : 3	Point : 1	Point : 3	Point : 1	Point : 1	Point : 2	Point : 3	Point : 3	Point : 1	Point : 1	Point : 1				
PD2.3 P	Point : 3	Point : 2	Point : 3	Point : 1	Point : 1	Point : 3	Point : 3	Point : 3	Point : 2	Point : 2	Point : 2				
PD2.3P	Point : 3	Point : 2	Point : 3	Point : 2	Point : 1	Point : 3	Point : 3	Point : 3	Point : 3	Point : 2	Point : 3				
PD2.3 P	Point : 3	Point : 3	Point : 3	Point : 2	Point : 2	Point : 3	Point : 3	Point : 3	Point : 3	Point : 2	Point : 3				
PD2.3P	Point : 3	Point : 3	Point : 3	Point : 2	Point : 2	Point : 3	Point : 3	Point : 3	Point : 3	Point : 1	Point : 3				
Average Score	3	2.2	3	1.6	1.4	2.8	3	3	2.4	1.6	2.4				

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha														
Course	Pharm D														
Batch	2021-2027														
Semester	2														
Subject	Pharmaceutical Microbiology Practical														
	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO,01	PSO,02	PSO,03	PSO,04
CO1	Point : 3 Justification : different equipments like autoclave, B.O.D, L A F, hot air streilizer and different sterilization methods provide the students with good pharmacy knowledge.	Point : 3 Justification : Able to execute systematically the synthesis of medicinal compounds and intermediates	Point : 3 Justification : sterilization of glasswares and culture media can develop planning abilities in practical microbiology	Point : 2 Justification : during sterilization students learn modern equipments like autoclave, BOD incubator											
CO2	Point : 3 Justification : subculturing of different microorganism like bacteria and fungus and different isolation methods		Point : 3 Justification : of different culture media for sub culturing and isolation	Point : 3 Justification : by using laminar air flow , HEPA filter, autoclave											
CO3	Point : 3 Justification : different staining methods like gram staining, negative and simple staining enable the students to differentiate microorganism			Point : 2 Justification : compound and projection microscope are used to differentiate different microorganism											
CO4	Point : 3 Justification : microbiological assay of antibiotics provide knowledge about the therapeutic efficiency of antibiotics		Point : 3 Justification : microbiological assay of antibiotics provide knowledge about the therapeutic efficiency of antibiotics												
CO5	Point : 3 Justification : bacteriological analysis of water provide the students about the contamination of water			Point : 2 Justification : by using laminar											
Average Score	3	3	3	2.25											





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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2021-2027
Semester	2
Subject	Pharmacotherapeutics-I Practical

SI.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	PD 2.6.2 Practical	Knowledge in analysing patient specific cases based on SOAP format		Apply	Jobin Kunjumon Vilapurathu
2	PD 2.6.3 Practical	Gain knowledge in analysing patients therapy based on clinical parameters		Evaluate	Jobin Kunjumon Vilapurathu
3	PD 2.6.1 Practical	Understand the therapeutic approach to the management of diseases and to learn the importance of preparation of individualized therapeutic plans based on the diagnosis		Analyze	Jobin Kunjumon Vilapurathu

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2021-2027
Semester	2
Subject	Pharmacotherapeutics-I Practical

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
PD 2.6.2 Practical	Point : 1 Justification : Understanding on the medical management of various diseases		Point : 2 Justification : Determine the Clinical condition of the patient										Point : 2		Point : 2
PD 2.6.3 Practical		Point : 2 Justification : Compare the treatment given to the standard treatment		Point : 3 Justification : Use of Computers to prepare the ICT presentation				Point : 3 Justification : Effective communication with the patients				Point : 1		Point : 2	
PD 2.6.1 Practical	Point : 1	Point : 3	Point : 3	Point : 2				Point : 3				Point : 2		Point : 2	
Average Score	1	2.5	2.5	2.5				3				1.5	2	2	2

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2.6.1:
Course Outcomes (COs)

Program: pharm D

Batch: 3rd year





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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2020-2026
Semester	3
Subject	Pharmacology-II

SI.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO1	Explain the pharmacology drugs acting on blood and blood forming, agents and Pharmacology of drugs acting on Renal System	Unit 1, 2	Remember	Emily James
2	CO2	Have an indepth knowledge of principles of Chemotherapy and pharmacology of chemotherapeutic agents .	Unit 3	Understand	Emily James
3	CO3	Explain pharmacology drugs acting on immune system	Unit 4	Understand	Emily James
4	CO4	Discuss principles of toxicology and bioassay	Unit 5	Understand	Emily James
5	CO5	Discuss Structure and functions of the components of the cell. Discuss different aspects of genes and their regulatory functions.	Unit 6	Apply	Emily James

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2020-2026
Semester	3
Subject	Pharmacology-II

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
CO1	Point : 3 Justification : An indepth knowledge on pharmacology of drugs acting on blood, blood forming agents.	Point : 1 Justification : Provides the base for planning a therapeutic regimen	Point : 1 Justification : Decisions regarding drug therapy and choice of drug is based on the pharmacological basis of the drugs thus helping in clinican decision making	Point : 1	Point : 1 Justification : Development of leadership skills through seminar presentations and group discussions	Point : 1 Justification : Can be used to provide professional services like pharmacy educators, health care promoters	Point : 1	Point : 1	Point : 1 Justification : Provide awareness on drugs	Point : 1			Point : 2		
CO2	Point : 3 Justification : A comprehensive and thorough knowledge of pharmacology of chemotherapeutic agents ,including antibacterial, antiviral , antifungal , anticancer and other infectious diseases.	Point : 1 Justification : Provides the knowledge for planning a therapeutic regimen	Point : 1 Justification : Utilisation of knowledge regarding drugs, dosage, adverse effects and interactions is made on basis of pharmacological principles studies.	Point : 1	Point : 1 Justification : Active participation in seminars and group discussion instills leadership skills	Point : 1 Justification : Knowledge gained can be utilised in providing professional services and education of society.	Point : 1	Point : 1	Point : 1	Point : 1 Justification : Can provide information and assess the carcinogens in environment			Point : 2		
CO3	Point : 3 Justification : A deep knowledge of drugs acting on immune system	Point : 1 Justification : Drug therapy can be planned	Point : 1 Justification : Can help in clinical decision making		Point : 1 Justification : Seminar presentations and other	Point : 1	Point : 1	Point : 1	Point : 1	Point : 1			Point : 2		

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
	immunomodulatory drugs	accordingly, based on therapeutic principles studied.	regarding dose, choice , indication of drug.		opportunities for leadership skill development										
CO4	Point : 3 Justification : A thorough knowledge on various toxicity testing in preclinical evaluation of drugs.		Point : 1 Justification : Clinical problem solving can be made easier with the application of drug principles.		Point : 1 Justification : Seminar presentation and group discussion helps develop clinical skills.	Point : 1	Point : 1	Point : 1	Point : 1	Point : 1			Point : 2		
CO5	Point : 2 Justification : Sufficient background to understand the cellular and molecular mechanisms of drugs and knowledge on recombinant drug prepared using various principles of biotechnology.		Point : 1 Justification : Application to clinical drug decision making.		Point : 1 Justification : Participation in seminar presentation and group activities helps develop leadership skills	Point : 1	Point : 1	Point : 1	Point : 1	Point : 1			Point : 2		
Average Score	2.8	1	1	1	1	1	1	1	1	1			2		

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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2020-2026
Semester	3
Subject	Pharmaceutical Analysis

SI.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	C302.1	Critically evaluate various analytical techniques in the context of qualitative and quantitative analysis of drugs in single and combination dosage forms	qualitative and quantitative analysis of drugs in single and combination dosage forms	Apply	Elseena Jose
2	C302.2	Demonstrate an understanding of theory and application of most common methods of pharmaceutical analysis in research, academic and industry.	Practical experiments based on theoretical Knowledge	Apply	Elseena Jose
3	C302.3	Apply the principles of chromatography in qualitative and quantitative analysis of pharmaceuticals in research and industrial perspective	Various chromatographic methods	Apply	Elseena Jose
4	C302.4	Utilize the knowledge of spectroscopy in the elucidation of molecular structure and the interpretation of the result.	IR, MASS AND NMR INTERPRETATION	Analyze	Elseena Jose
5	C302.5	Demonstrate the scope of various quality-assuring parameters for reliable analytical testing and documentation	Demonstrate the scope of various quality-assuring parameters for reliable analytical testing and documentation	Understand	Elseena Jose

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2020-2026
Semester	3
Subject	Pharmaceutical Analysis

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
C302.1	Point : 3 Justification : Possess knowledge About analytical techniques in the context of qualitative and quantitative analysis of drugs	Point : 2 Justification : Helps in planning qualitative and quantitative analysis of drugs	Point : 3 Justification : Qualitative And quantitative analysis method can be used for the identification and purity Checking of Drugs .The method selection will enhance problem solving skills	Point : 3 Justification : Will be able to learn and use various analytical instruments for the analysis of samples like HPLC, LC MS	Point : 2 Justification : coordination among the team need for doing the analysis in a smarter way.	Point : 3 Justification : Knowledge of Analytical methods create a professional identity as analyst.		Point : 1 Justification : Preparation of records of analytical data and its interpretation	Point : 2 Justification : Able to understand and solve various problems related to potency of drug by analytical methods		Point : 3 Justification : basic concept of analytical techniques in qualitative and quantitative analysis of drugs helps to identify the new techniques				
C302.2	Point : 3 Justification : Acquire knowledge about various research and industry aspect of analytical techniques	Point : 1 Justification : Industry based knowledge is lacking	Point : 2 Justification : The theoretical knowledge of principles and applications of various methods helps in the research field and industry	Point : 3 Justification : The demonstration classes as well as the usage of instruments helps in research, academic and industry		Point : 2 Justification : Basic knowledge of theory and applications helps in industry and research field to obtain an identity	Point : 1 Justification : Cultural and personal variabilities may reduce following up ethical principles	Point : 1 Justification : Can communicate effectively about research methods that can be adopted	Point : 2 Justification : Understanding of theory and application of analytical methods help in small extent to society as a pharmacist		Point : 2 Justification : Knowledge of theory and application of various methods can be used to explore new aspects of industry and research fields				
C302.3	Point : 2 Justification : Possess basic knowledge about principles of chromatography and its advantages	Point : 3 Justification : Will be able to plan and execute various separation techniques	Point : 3 Justification : The chromatographic techniques can be used for the qualitative and quantitative analysis of drugs and formulations	Point : 3 Justification : Tools like HPLC or GC will give exposure and skill		Point : 3 Justification : Application of chromatographic techniques in industry		Point : 2 Justification : Demonstration of chromatographic techniques and Preparation of records in an effective manner	Point : 1 Justification : Sound Knowledge about chromatography creates an identity in society, but helps in less extent as a pharmacist	Point : 1 Justification : The usage of solvents and reagents effectively and the selection of proper method may help in conservation of these	Point : 3 Justification : New innovative ideas can be recognized and implemented to satisfy the emerging needs in separation and analysis of				

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
										chemical to an extent	drugs and formulations				
C302.4	Point : 2 Justification : Acquire knowledge of spectral interpretation	Point : 3 Justification : Planning of spectral interpretation by various analytical methods are possible	Point : 3 Justification : Spectral interpretation can be used as a means of identification of substances and its purity checking		Point : 1 Justification : knowledge of spectroscopy in the elucidation of molecular structure helps to deal with drugs and formulations	Point : 3 Justification : The knowledge about spectroscopy in the elucidation of molecular structure and the interpretation of the result create a professional identity					Point : 3 Justification : Can apply the basic concepts about structural interpretation to identify and study newer molecules				
C302.5	Point : 3 Justification : Possess knowledge about the Quality assurance processes and its documentation	Point : 2 Justification : Can develop a system of SOP preparation and calibration of instruments by students.	Point : 2 Justification : The topic related to Quality assurance programs helps in identifying the various aspects related to QA systems for pharmaceuticals		Point : 2 Justification : knowledge of QA programs helps in identifying team building and leadership	Point : 2 Justification : Knowledge on quality documentation make the candidate to associate with QA department in industry.	Point : 3 Justification : The knowledge about QA helps in recognizing the ethical principles which should be followed				Point : 1 Justification : Effective implementation of various quality assuring parameters				
Average Score	2.6	2.2	2.6	3	1.6666666666667	2.6	2	1.3333333333333	1.6666666666667	1	2.4				

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Nirmala College of Pharmacy, Muvattupuzha

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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2020-2026
Semester	3
Subject	Pharmacotherapeutics-II

SI.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	PD3.1	know the pathophysiology of selected disease states and the rationale for drug therapy		Apply	Dona Maria Jetto
2	PD3.2	know the therapeutic approach to management of these diseases		Analyze	Dona Maria Jetto
3	PD3.3	know the controversies in drug therapy		Evaluate	Dona Maria Jetto
4	PD3.4	know the importance of preparation of individualised therapeutic plans based on diagnosis		Analyze	Dona Maria Jetto
5	PD3.5	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)		Apply	Dona Maria Jetto

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2020-2026
Semester	3
Subject	Pharmacotherapeutics-II

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
PD3.1	Point : 3 Justification : Knowledge of etiology, symptoms, pathophysiology of diseases	Point : 3	Point : 3		Point : 3	Point : 3	Point : 2	Point : 3	Point : 3		Point : 3				
PD3.2	Point : 3 Justification : Knowledge on various therapeutic approaches in treating disorders	Point : 3	Point : 2	Point : 1	Point : 2	Point : 3	Point : 1	Point : 3	Point : 3		Point : 3				
PD3.3	Point : 3 Justification : Knowledge on various treatment options is required to choose the most appropriate one.	Point : 3	Point : 3	Point : 3	Point : 3	Point : 3	Point : 2	Point : 3	Point : 1		Point : 3				
PD3.4	Point : 3	Point : 3	Point : 3	Point : 1	Point : 2	Point : 3	Point : 2	Point : 3	Point : 2		Point : 3				
PD3.5	Point : 3	Point : 3	Point : 3	Point : 2	Point : 3	Point : 3	Point : 2	Point : 3			Point : 3				
Average Score	3	3	2.8	1.75	2.6	3	1.8	3	2.25		3				

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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2020-2026
Semester	3
Subject	Pharmaceutical Jurisprudence

SI.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	PD304.1	1	To understand the constitution of central and state pharmacy councils	Understand	Prasanth B
2	PD 304.2	2	Understand the Pharmaceutical legislations and their implications in the development and marketing.	Apply	Prasanth B
3	PD 304.3	3	Grasp knowledge on administration of various act in India	Evaluate	Prasanth B
4	PD304.4	4	Grasp knowledge on the regulatory authorities and agencies governing the import, manufacture and sale of pharmaceuticals.	Apply	Prasanth B
5	PD 304.5	5	Understand the code of ethics during the pharmaceutical practice and the pharmacists oath.	Analyze	Prasanth B

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2020-2026
Semester	3
Subject	Pharmaceutical Jurisprudence

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
PD304.1	Point : 3 Justification : Provides pharmacy knowledge about pharmacy act	Point : 3 Justification : Organization skills can be developed from the PCI constitution	Point : 1 Justification : It teaches the way how to solve the problem arising in relation with administration of pharmacy act	Point : 1 Justification : Learning appropriate method and procedure for functioning of PCI	Point : 2 Justification : Students are able to give guidelines regarding the registration procedures.	Point : 3 Justification : Learn the professional value of pharmacist as inspectors.	Point : 3 Justification : All ethical practices are learning	Point : 2 Justification : Communicate and document and make strong presentations regarding registration of pharmacists, PCI etc.	Point : 3 Justification : Learn about a pharmacist role in society mainly in approval and withdrawal of approval of education institutions.	Point : 3 Justification : This topic delivers the need and impact of professional bodies for sustainable development.	Point : 3 Justification : Study and review of rules , regulations and amendments make life long learning				
PD 304.2	Point : 3 Justification : Provides pharmacy knowledge about various committee and their functions	Point : 3 Justification : The need for time management and organizational skills can be studied .	Point : 1 Justification : It teaches the different measures taken by various committees to against the problems of pharmacy in India	Point : 1 Justification : Learning appropriate procedure for functioning of legislations	Point : 2 Justification : Learn about how to form a committee and how can they solve a problem.	Point : 3 Justification : Learn the professional role of pharmacist in various committee.	Point : 3 Justification : All ethical practices are learning	Point : 2 Justification : Communicate and document and make strong presentations regarding legislations	Point : 3 Justification : Learn about a pharmacist role in society in making legislations.	Point : 3 Justification : This topic delivers the need and impact of legislations in solving problems in pharmacy	Point : 3 Justification : Study and review of rules , regulations and amendments make life long learning				
PD 304.3	Point : 3 Justification : Provides pharmacy knowledge regarding administration act and rules	Point : 3 Justification : Provides an understanding about the planning required for timely preparation , implementation and execution	Point : 1 Justification : It teaches the way how to solve the problem arising in administration of act	Point : 1 Justification : Learning appropriate method and procedure of manufacturing units, getting patent, calculating	Point : 3 Justification : Knowledge about various acts help them to guide others about functioning of various laws,	Point : 3 Justification : Learn the professional role of pharmacist in administration of various acts	Point : 3 Justification : All ethical practices are learning	Point : 2 Justification : Communicate and document and make strong presentations regarding various acts	Point : 3 Justification : Learn about a pharmacist role in society for administration of various act.	Point : 3 Justification : This topic delivers the need and impact of various acts in society	Point : 3 Justification : Study and review of rules , regulations and amendments make life long learning				

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
		of various acts and rules .		price of drugs etc.	guidelines to be followed while doing animal experiments, conditions for termination of pregnancy, right to information etc.										
PD304.4	Point : 3 Justification : Provides pharmacy knowledge on import ,sale & manufacture of drug	Point : 3 Justification : Procuring licenses for Sale , import and manufacture of drug and its renewal should be done on time. This teaches the time management The administration teaches the delegation skills and organizational skills	Point : 1 Justification : It teaches the way how to solve the problem arising in sale,import and manufacture of drug –with rules	Point : 1 Justification : Learning appropriate method and procedure for functioning of manufacturing units blood bank etc.	Point : 3 Justification : Motivate them to be work as a drug inspector or analyst. Can motivate sale of drug and provide knowledge on it.	Point : 3 Justification : Learn the professional identity of pharmacist in various sectors like quality control ,production ,retailer wholesaler ,as drug inspectors ,analysts etc	Point : 3 Justification : All ethical practices are learning	Point : 2 Justification : Communicate and document and make strong presentations regarding the sale, import and manufacture of drugs.	Point : 3 Justification : Learn about a pharmacist role in society in the sale, import and manufacture of drugs	Point : 3 Justification : This topic delivers the need and impact of sale and manufacture of genuine drugs for society	Point : 3 Justification : Study and review of rules , regulations and amendments make life long learning				
PD 304.5	Point : 3 Justification : Provides pharmacy knowledge about oath & ethics.	Point : 2 Justification : Teaches to develop and implement plans to perform the pharmaceutical practice according to the code of ethics.	Point : 1 Justification : It teaches the possible problems and how to avoid this to perform the duties of pharmacists in ethical manner.	Point : 1 Justification : Learning ethics of pharmacists .	Point : 3 Justification : Can motivate the pharmacists about the need to be ethical in job, trade profession etc.	Point : 3 Justification : Learn about the ethics to be followed /role while working in various fields like hospital ,trade, research etc.	Point : 3 Justification : All ethical practices are learning	Point : 2 Justification : Communicate and document and make strong presentations regarding moral principles to make profession of pharmacy a noble one	Point : 3 Justification : Learn about ethics to be followed by pharmacist which in turn help the society and their health.	Point : 3 Justification : This topic delivers the need and impact of ethics in professional practice for betterment of society	Point : 3 Justification : Study and review of rules , regulations and amendments make life long learning				
Average Score	3	2.8	1	1	2.6	3	3	2	3	3	3				



Nirmala College of Pharmacy, Muvattupuzha

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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2020-2026
Semester	3
Subject	Medicinal Chemistry

SI.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO.1	Demonstrate extensive and coherent knowledge of the principles and concepts associated with the design and discovery of medicinal agents.		Understand	SINI BABY
2	CO 2	Get knowledge about drug design softwares and advanced techniques		Apply	SINI BABY
3	CO 3	Study the concept of prodrug design & its applications in the field of medicines.		Analyze	SINI BABY
4	CO 4	Explain the effect of chemical structure of a drug on its pharmacokinetic properties.		Understand	SINI BABY
5	CO 5	Study the important classes of medicinal compounds and drugs including their SAR, MOA, therapeutic uses, synthesis and their applications in medical field.		Apply	SINI BABY

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2020-2026
Semester	3
Subject	Medicinal Chemistry

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
CO.1	Point : 3 Justification : Possess knowledge about principles and concepts associated with the design and discovery of medicinal agents.	Point : 2 Justification : Design & discovery of medicinal agents require planning like choice of lead molecule, method etc.	Point : 3 Justification : Drug design softwares are important in analyzing the therapeutic agents.	Point : 3 Justification : Knowledge on the principles of drug design is important in drug discovery.	Point : 2 Justification : Can take a lead role in drug industry by using this outcome.	Point : 2 Justification : Can explain the principles and concepts associated with the design and discovery of medicinal agents	Point : 1 Justification : Ethical values of the profession can be maintained.	Point : 2 Justification : Effective communication with professionals of the pharmacy field is possible only with the basic knowledge of drug molecules and their applications.	Point : 2 Justification : Can apply knowledge to explain the action of drug to the patients	Point : 2 Justification : Knowledge about drug design helps in the development of molecules with less cost conserve the use of more chemicals.	Point : 3 Justification : Extensive and coherent knowledge of the principles and concepts associated with the design and discovery of medicinal agents				
CO 2	Point : 3 Justification : Knowledge about drug design softwares and advanced techniques.	Point : 2 Justification : Knowledge on advanced drug design softwares is essential for proper planning of drug discovery	Point : 3 Justification : Advanced techniques of drug discovery can resolve many disadvantages of normal methods	Point : 3 Justification : Drug design softwares are important in drug discovery.	Point : 2 Justification : Can motivate the society the need for using modern drug.	Point : 1 Justification : Get knowledge about drug design softwares and advanced techniques	Point : 1 Justification : Able to apply knowledge based on pharmaceutical ethics which is beneficial in the professional identity of a pharmacist	Point : 2 Justification : Can write effective reports and documentation	Point : 2 Justification : The development of new drugs for new diseases will help for the betterment of health care system & society	Point : 2 Justification : Sound knowledge about softwares helps to prevent the usage of toxic chemical substances	Point : 3 Justification : Knowledge about drug design softwares and advanced techniques.				
CO 3	Point : 3 Justification : Acquire knowledge on the concept of prodrug design & its applications in the field of medicines	Point : 3 Justification : Proper planning is required to make the medicines and also its evaluation in different stages requires delegation skill.	Point : 2 Justification : Prodrug design is helpful in analyzing drug discovery process	Point : 2 Justification : Applications of prodrug design is important in modern tool usage of drug discovery.	Point : 1 Justification : Prodrug design is useful in the process of drug discovery which leads to the formulation drugs with more advantages.	Point : 2 Justification : Can study the concept of prodrug design & its applications in the field of medicines.	Point : 1 Justification : Professional ethics is maintained by correlating with pharmacy knowledge in chemical nature of drugs.	Point : 2 Justification : Can write effective reports and documentation.	Point : 2 Justification : Can develop quality formulations for maintaining the health of the society.	Point : 1 Justification : Knowledge about prodrugs helps in use of tasteless & harmful drugs as medicines	Point : 2 Justification : Studying the concept of prodrug design & its applications in the field of medicines.				
CO 4	Point : 3 Justification :	Point : 2 Justification :	Point : 3 Justification :	Point : 2 Justification	Point : 1 Justification :	Point : 2 Justification :	Point : 1 Justification :	Point : 1 Justification :	Point : 2 Justification :	Point : 2 Justification :	Point : 3 Justification :				

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
	Get the knowledge about the effect of chemical structure of a drug on its pharmacokinetic properties.	For determining the the effect of chemical structure of a drug on its pharmacokinetic properties proper delegation skills & planning is required	Pharmacokinetic properties of drug molecule is essential to produce new formulation.	: Chemical structure is important in the drug design process.	Chemical structure of a compound & its pharmacokinetic properties can make an analyst for proper discovery of drugs	Can explain the effect of chemical structure of a drug on its pharmacokinetic properties.	Correlating pharmacy knowledge with ethics.	Able to communicate with research sector and drug industry	Pharmacokinetic properties of a drug is important in formulation of medicines.	Drugs & its pharmacokinetic properties helps in manufacturing of medicines.	Can explain the effect of chemical structure of a drug on its pharmacokinetic properties.				
CO 5	Point : 3 Justification : Knowledge about the important classes of medicinal compounds and drugs including their SAR, MOA, therapeutic uses, synthesis and their applications in medical field.	Point : 2 Justification : Knowledge on the important classes of medicinal compounds is important in drug discovery	Point : 2 Justification : Discovery of medicinal compounds is done on the basis of SAR studies	Point : 1 Justification : Different classes of drugs & their applications are important in drug discovery.	Point : 1 Justification : Knowledge on different classes of drugs & their applications are important in drug discovery.	Point : 2 Justification : Can study the important classes of medicinal compounds and drugs including their SAR, MOA, therapeutic uses, synthesis and their applications in medical field.	Point : 1 Justification : Can consider ethical principles while development of new drugs	Point : 2 Justification : SAR and mechanisms of drugs are important in drug research for good communication	Point : 2 Justification : Knowledge on medicinal compounds help the society to produce uniform and quality products.	Point : 2 Justification : Knowledge on the important classes of medicinal compounds is important in drug discovery.	Point : 3 Justification : Knowledge on the important classes of medicinal compounds and drugs including their SAR, MOA, therapeutic uses, synthesis and their applications in medical field.				
Average Score	3	2.2	2.6	2.2	1.4	1.8	1	1.8	2	1.8	2.8				

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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2020-2026
Semester	3
Subject	Pharmaceutical Formulations

SI.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO 1	Demonstrate knowledge of various dosage forms used in pharmaceuticals, including tablets, liquid orals, parenteral preparations, novel drug delivery systems, ophthalmic preparations, ointments, and capsules, and their formulation principles.		Understand	Fels Saju
2	CO2	To provide a comprehensive understanding of the principles of drug formulation, development, and manufacturing, including the selection of appropriate dosage forms, excipients, and manufacturing processes.		Apply	Fels Saju
3	CO3	Analyze the physicochemical properties of drug substances and their impact on the selection of appropriate dosage forms for administration, including the use of novel drug delivery systems.		Understand	Fels Saju
4	CO4	To enable students to apply fundamental concepts of physical pharmacy, pharmacokinetics, and drug delivery to the design and optimization of pharmaceutical products for different therapeutic indications.		Create	Fels Saju
5	CO5	Evaluate the stability of pharmaceutical products under different storage conditions, including temperature, humidity, and light exposure, and assess the impact of formulation factors on product stability for different types of dosage forms.		Apply	Fels Saju

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2020-2026
Semester	3
Subject	Pharmaceutical Formulations

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
CO 1	Point : 3	Point : 1	Point : 2			Point : 1	Point : 3	Point : 3	Point : 1		Point : 3				
CO2	Point : 3	Point : 1	Point : 2			Point : 1	Point : 3	Point : 3	Point : 1		Point : 3				
CO3	Point : 3 Justification : 3	Point : 1	Point : 2			Point : 1	Point : 3 Justification : 3	Point : 3	Point : 1		Point : 3				
CO4	Point : 3	Point : 1	Point : 2			Point : 1	Point : 3	Point : 3	Point : 1		Point : 3				
CO5	Point : 3	Point : 1	Point : 2	Point : 1 Justification : Demonstration of FTIR and other equipments are included		Point : 1	Point : 3	Point : 3	Point : 1		Point : 3				
Average Score	3	1	2	1		1	3	3	1		3				

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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2020-2026
Semester	3
Subject	Pharmacology-II Practical

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO1	They gained skills to apply pharmacology drug knowledge to carry out simulated pharmacological experiments using experimental software.		Apply	Emily James
2	CO2	They would have learnt the principles of bioassay and gained skills to carry out bioassays to identify concentrations of unknown .		Apply	Emily James
3	CO3	Students would have gained knowledge to study the potentiating and antagonising effects of agonists/antagonists on DRC.		Apply	Emily James
4	CO4	They would have learnt the basic pre requisites in carrying out experimental pharmacology experiments.		Understand	Emily James

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2020-2026
Semester	3
Subject	Pharmacology-II Practical

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
CO1	Point : 3	Point : 3	Point : 2	Point : 3	Point : 1	Point : 3	Point : 1	Point : 1	Point : 1	Point : 1					
CO2	Point : 3	Point : 3	Point : 3	Point : 3	Point : 2	Point : 2	Point : 1	Point : 1	Point : 1	Point : 1					
CO3	Point : 3	Point : 3	Point : 3	Point : 3	Point : 2	Point : 2	Point : 1	Point : 1	Point : 1	Point : 1	Point : 1				
CO4	Point : 3	Point : 1	Point : 1		Point : 1	Point : 1	Point : 2	Point : 1	Point : 1	Point : 2	Point : 1				
Average Score	3	2.5	2.25	3	1.5	2	1.25	1	1	1.25	1				

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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2020-2026
Semester	3
Subject	Pharmaceutical Analysis Practical

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	C302.6	Illustrate the practical applications of instruments used in pharmaceutical research activities.		Apply	Elseena Jose
2	C302.7	Design the analytical methods and evaluate the drug substance and formulations as per pharmacopoeia guidelines.	Method development	Analyze	Elseena Jose
3	C302.8	Utilize the theoretical skill in interpreting the qualitative and quantitative data in an effective way.	interpreting the qualitative and quantitative data	Analyze	Elseena Jose

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2020-2026
Semester	3
Subject	Pharmaceutical Analysis Practical

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.0
C302.6	Point : 3 Justification : Possess knowledge About analytical instruments used in Pharmaceutical research programs	Point : 3 Justification : Helps in planning qualitative and quantitative analysis of drugs using various instruments												
C302.7														
C302.8														
Average Score	3	3												

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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2020-2026
Semester	3
Subject	Pharmacotherapeutics-II Practical

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	pd303.1	Understand the therapeutic approach to the management of diseases and to learn the importance of preparation of individualized therapeutic plans based on the diagnosis		Apply	Dona Maria Jetto
2	PD303.2	Knowledge in analysing patient specific cases based on SOAP format		Apply	Dona Maria Jetto
3	PD303.3	Gain knowledge in analysing patients therapy based on clinical parameters		Evaluate	Dona Maria Jetto

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2020-2026
Semester	3
Subject	Pharmacotherapeutics-II Practical

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life long learning
pd303.1	Point : 3 Justification : improves pharmacy knowledge	Point : 3 Justification : plan in accordance with patients condition and therapy administered	Point : 3 Justification : helps in identifying drug and patient related factors in modifying drug therapy	Point : 3 Justification : use of modern softwares	Point : 3 Justification : improves leadership skills	Point : 3 Justification : enhances role of pharmacist	Point : 2 Justification : practice of pharmaceutical ethics in deciding patientstherapy	Point : 3 Justification : improves communication skills	Point : 2 Justification : improves the health of patients		Point : 3 Justificati : life long learning i updating knowledç
PD303.2	Point : 3 Justification : use of knowledge in the area of pharmacy in analysing cases	Point : 3 Justification : plan and present cases based on SOAP format	Point : 2 Justification : identifies patient factos in monitoringdrug therapy	Point : 3 Justification : use of tools like micromedex	Point : 3 Justification : improves leadership skills	Point : 3 Justification : enhances role of pharmacist	Point : 2 Justification : practice of pharmaceutical ethics in deciding patientstherapy	Point : 3 Justification : improves communication skills	Point : 1 Justification : improves the health of patients		Point : 3 Justificati : life long learning i updating knowledç
PD303.3	Point : 3 Justification : use knowledge of drugs and lab values in deciding therapy	Point : 2 Justification : plan ,decide and modify patient therapy based on patients clinical parametrs	Point : 2 Justification : matches patient lab pameters with drug therapypar	Point : 3 Justification : use of varous soa in analysing casesrestfw	Point : 3 Justification : improves leadership skills	Point : 2 Justification : enhances role of pharmacist	Point : 2 Justification : practice of pharmaceutical ethics in deciding patientstherapy	Point : 3 Justification : improves communication skills	Point : 2 Justification : improves the health of patients		Point : 3 Justificati : life long learning i updating knowledç
Average Score	3	2.6666666666667	2.3333333333333	3	3	2.6666666666667	2	3	1.6666666666667		3

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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2020-2026
Semester	3
Subject	Medicinal Chemistry Practical

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	C 3.5	Synthesis of selected drugs involving two or more steps and study spectral analysis of drugs synthesized		Remember	SINI BABY
2	C3.5	Establishing the Pharmacopeial Standards of drugs synthesized		Apply	SINI BABY
3	C3.5	Identification and estimation of drug metabolites from biological fluids		Apply	SINI BABY
4	C3.5	Determination of Partition coefficient, Dissociation constant and Molar refractivity of compounds for QSAR analysis		Apply	SINI BABY
5	C3.5	Workshop on drug design softwares.		Apply	SINI BABY

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2020-2026
Semester	3
Subject	Medicinal Chemistry Practical

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02
C 3.5	Point : 3	Point : 2	Point : 2	Point : 2	Point : 3	Point : 2	Point : 1	Point : 2	Point : 2	Point : 1	Point : 2		
C3.5	Point : 3	Point : 2	Point : 1	Point : 1	Point : 2	Point : 1	Point : 1	Point : 1	Point : 2	Point : 1	Point : 3		
C3.5	Point : 3	Point : 2	Point : 3	Point : 3	Point : 2	Point : 1	Point : 1	Point : 2		Point : 1	Point : 2		
C3.5	Point : 2	Point : 1	Point : 1	Point : 1	Point : 2	Point : 1	Point : 1	Point : 1		Point : 1	Point : 2		
C3.5	Point : 3	Point : 3	Point : 3	Point : 3	Point : 3	Point : 2	Point : 1	Point : 1	Point : 2	Point : 1	Point : 1		
Average Score	2.8	2	2	2	2.4	1.4	1	1.4	2	1	2		

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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2020-2026
Semester	3
Subject	Pharmaceutical Formulations Practical

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1		Attain basic understanding in the area of pre-formulation study, manufacturing, packaging and labeling of tablets.		Apply	Fels Saju
2		Understand the requirements of parenteral product preparation, packaging and labeling		Apply	Fels Saju
3		Understand processes involved in the preparation and evaluation of syrups		Apply	Fels Saju
4		Develop skill in the manufacturing and packaging of creams		Apply	Fels Saju
5		Learn the evaluation studies of different formulations and packaging materials.		Apply	Fels Saju

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha													
Course	Pharm D													
Batch	2020-2026													
Semester	3													
Subject	Pharmaceutical Formulations Practical													
	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PS
	Point : 3 Justification : important activities in formulation	Point : 3 Justification : required planing for collection and processing		Point : 3 Justification : tablet punching machine is usined for tablet punching		Point : 3 Justification : study the preparation techniques make the pharmacist more competent					Point : 3 Justification : Frequent updation is required in all processes			
	Point : 3 Justification : deal with parenterals	Point : 3 Justification : required planing for collection and processing									Point : 3 Justification : Frequent updation is required in all processes			
		Point : 3 Justification : required planing for collection and processing	Point : 3											
Average Score	3	3	3	3		3					3			

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2.6.1:
Course Outcomes (COs)

Program: pharm D

Batch: 4th year





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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2019-2025
Semester	4
Subject	Pharmacotherapeutics-III

SI.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO1	Understand the pathophysiology and therapeutic approach to the management of gastrointestinal diseases		Create	Suja Abraham
2	CO2	Acquire the knowledge on hematological diseases and summarise the treatment options including reference to the latest available evidence		Create	Suja Abraham
3	CO3	Analyse the therapeutic approaches in neurological diseases, based on individualised patient care and identify drug-related problems encountered in clinical practice		Create	Suja Abraham
4	CO4	Provide pharmaceutical care to patients having psychiatric diseases and correlate the monitoring parameters to the therapeutic outcome		Create	Suja Abraham
5	CO5	Formulate/suggest the therapeutic plan based on the clinical condition of the patients with pain		Create	Suja Abraham
6	CO6	Understand the significance of methodology in clinical studies and the relevance of meta analysis		Evaluate	Suja Abraham

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2019-2025
Semester	4
Subject	Pharmacotherapeutics-III

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
CO1	Point : 3 Justification : Knowledge on gastro intestinal diseases and its management	Point : 3 Justification : Helps in formulating therapeutic plan based on patient's condition	Point : 3 Justification : Any drug related problem occurred it can be assessed properly and resolved by proposing suitable alternatives.	Point : 2 Justification : Can be practiced for identifying drug-related problems and also to provide patient counselling	Point : 1 Justification : Prescription analysis and case presentation help to create confidence and leadership	Point : 3 Justification : Evaluate the clinical problems and provide recommendation for early detection and prevention of diseases	Point : 2 Justification : Realize the importance of ethical clinical practice	Point : 2 Justification : Recognize the significance of verbal and nonverbal communication skills needed to work in a hospital environment	Point : 2 Justification : Communicating with society about latest developments in healthcare	Point : 3 Justification : Sound knowledge about the etiological agents for various diseases helps to prevent the incidence of ailments	Point : 3 Justification : The basic concepts in pharmacotherapy along with the latest developments is necessary for a successful pharmacist				
CO2	Point : 3 Justification : Knowledge on hematological diseases & its management	Point : 2 Justification : Plan the clinical pharmacy activities during ward round participation and effective utilization of time during patient counselling and drug information	Point : 2 Justification : Can identify ADR through signal detection and analyse using causality assessment	Point : 2 Justification : Sound knowledge about modern tools like drug information softwares and web resources	Point : 2 Justification : Can reduce the concerns of patients and educate them regarding their disease, drugs and lifestyle modifications	Point : 2 Justification : Knowledge about indication, contraindication, drug interaction, adverse effect etc will help to identify the right drug	Point : 2 Justification : Can apply ethical principles concerned with patient privacy	Point : 2 Justification : Can present effective reports to communicate with patients and other healthcare professionals	Point : 2 Justification : Can extend the clinical pharmacy activities to the community level for the betterment of the society	Point : 2 Justification : Aware of preventable factors such as food and allergens as contributing agents for many diseases helps in the prevention	Point : 2 Justification : Know the importance of communication skills as a lifelong learning				
CO3	Point : 3 Justification : Safe use of drugs in neurological diseases	Point : 2 Justification : Can plan safer drugs according to different clinical conditions	Point : 3 Justification : Dose calculation based on age, creatinine clearance etc can be done	Point : 3 Justification : Modern tools helps to calculate drug doses in hepatic and renal diseases and in case of special population	Point : 1 Justification : Communicate with other healthcare providers	Point : 2 Justification : Can explain the need for pharmaceutical care in case of geriatrics and paediatrics	Point : 2 Justification : Ethical evaluation criteria should be made	Point : 2 Justification : Can write effective reports and can be familiar with different methods to improve communication skills	Point : 2 Justification : Create awareness on maintaining the health of the society.	Point : 2 Justification : Possess knowledge about hygiene to be maintained in the hospital to prevent the spread of communicable / infectious diseases in patients require longer duration of stay in hospital	Point : 2 Justification : Sound knowledge about food and drugs that can cause interactions with the prescribed medicines				

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
CO4	Point : 3 Justification : Knowledge on psychiatric diseases and its management	Point : 3 Justification : Can plan the pharmacotherapy of diseases based on clinical status of the patient	Point : 3 Justification : Identification of and resolution of drug related problems encountered in the daily practice	Point : 2 Justification : Can select appropriate resources for patient education and drug information	Point : 2 Justification : Educate the patients about importance of drug therapy, social interaction, family support etc	Point : 3 Justification : Provision of pharmaceutical care to the patients	Point : 2 Justification : Ethics must be followed while educate the patients	Point : 2 Justification : Give clear instruction lifestyle modifications	Point : 3 Justification : Can give directions for activities to engage them	Point : 3 Justification : Knowledge about etiological factors that trigger psychiatric illness	Point : 3 Justification : Interdisciplinary approach including counselling, nutritional support, behavioural therapy etc should be considered				
CO5	Point : 3 Justification : Rational use of drugs for management of pain	Point : 3 Justification : Can plan the most rational drug based on the severity	Point : 3 Justification : If there is any irrationality in prescription that can be identified and resolved.	Point : 1 Justification : Minimise errors	Point : 3 Justification : Can educate the society regarding the safe and rational use of medicine	Point : 2 Justification : Can perform professional activities such as health screening camps, education sessions on lifestyle disorders	Point : 2 Justification : Can consider ethical principles while interact with patients	Point : 2 Justification : Being able to comprehend the role of Pharmacist in ADR management and patient counselling	Point : 3 Justification : Can interact with society by providing more facilities in the community pharmacy	Point : 3 Justification : Educate about OTC medicines and its use in pain management	Point : 3 Justification : Apply the principles learned to needy society.				
CO6	Point : 3 Justification : Knowledge on evidence based medicine and clinical study methodologies	Point : 3 Justification : Plan projects/studies/publication based on the appropriate literature	Point : 3 Justification : Prepare project protocol according to the lacune identified	Point : 3 Justification : Identify statistical softwares suitable for systematic review and metaanalysis	Point : 2 Justification : Comprehend the evidence from literature with the practices in clinical settings	Point : 3 Justification : Publication of systematic review and metaanalysis improves our professional value	Point : 2 Justification : Ethics in publication of articles and conductance of studies	Point : 2 Justification : Communicate professionally the research findings with standard journals	Point : 2 Justification : Case reports and case control studies can be collected from community level	Point : 2 Justification : Research findings and publications are beneficial to the society	Point : 3 Justification : Evidence based approach helps to upgrade our knowledge and to update the clinical guidelines for diseases				
Average Score	3	2.6666666666667	2.8333333333333	2.1666666666667	1.8333333333333	2.5	2	2	2.3333333333333	2.5	2.6666666666667				



Nirmala College of Pharmacy, Muvattupuzha

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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2019-2025
Semester	4
Subject	Hospital Pharmacy

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	PD 4.2 T.1	Know various drug distribution methods		Understand	Merrin Joseph
2	PD 4.2 T.2	Know the professional practice management skills in hospital pharmacies		Understand	Merrin Joseph
3	PD.4.2 T.3	Know the manufacturing practices of various formulations in hospital pharmacies		Understand	Merrin Joseph
4	PD.4.2 T.4	Appreciate the stores management and inventory Control		Understand	Merrin Joseph

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2019-2025
Semester	4
Subject	Hospital Pharmacy

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
PD 4.2 T.1	Point : 3 Justification : The students will be able to handle proper control	Point : 2 Justification : able to plan proper inventory in hospitals	Point : 2 Justification : inventory distribution related problems handling ability		Point : 2 Justification : able to provide proper information and instructions to colleagues		Point : 1 Justification : proper inventory maintaining according to hospital ethics		Point : 2 Justification : able to coinfront patients need in timely manner			Point : 3	Point : 2	Point : 2	Point : 3
PD 4.2 T.2	Point : 3 Justification : students should be able to perform best pharmacy practicing methods		Point : 2 Justification : able to handle the day by day problems/scenarios in a hospital setup			Point : 2 Justification : able to maintain a professional relationship and identity by practices	Point : 3 Justification : pharmaceutical ethics will be studied for a proper practice by students					Point : 2		Point : 3	
PD.4.2 T.3	Point : 3 Justification : able to understand the manufacturing practices of different formulations			Point : 2 Justification : introduction of modern methods in preparation methods								Point : 3		Point : 2	
PD.4.2 T.4	Point : 3 Justification : proper methods of											Point : 3		Point : 2	Point : 2

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04	
	stores management in hospitals															
Average Score	3	2	2	2	2	2	2		2			2.75	2	2.25	2.5	

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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2019-2025
Semester	4
Subject	Clinical Pharmacy

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	4.3	Monitor drug therapy of the patient through medication chart review and clinical review		Apply	Antriya Annie Tom
2	4.3	Conduct the medication history interview and counsel the patients		Apply	Antriya Annie Tom
3	4.3	Detect, assess and monitor adverse drug reactions (ADR)		Evaluate	Antriya Annie Tom
4	4.3	Provide drug / poison information services by retrieving, analyzing, interpreting and formulate drug and medicine information by utilizing various databases and softwares.		Evaluate	Antriya Annie Tom
5	4.3	Interpret selected laboratory results (as monitoring parameters) of specific disease states		Analyze	Antriya Annie Tom

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2019-2025
Semester	4
Subject	Clinical Pharmacy

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
4.3	Point : 3 Justification : imparted excellent knowledge in relevant area		Point : 3 Justification : trained for problem analysis in each case	Point : 2 Justification : usage of relevant drug information databases, secondary resource		Point : 2 Justification : element of upholding professional identity in doing the activity imparted	Point : 3 Justification : inculcated importance of maintaining confidentiality in patient data usage and also imparted importance of providing accurate and relevant patient care	Point : 3 Justification : trained on proper interaction with healthcare professionals, patients and society	Point : 3 Justification : elements of social commitment and professional commitment imparted in training		Point : 3 Justification : life long learning experience imparted by updating changes in treatment guidelines				
4.3	Point : 3 Justification : imparted excellent knowledge in relevant area		Point : 3 Justification : trained for problem analysis in each case	Point : 2 Justification : usage of relevant drug information databases, secondary resource		Point : 2 Justification : element of upholding professional identity in doing the activity imparted	Point : 3 Justification : inculcated importance of maintaining confidentiality in patient data usage and also imparted importance of providing accurate and relevant patient care	Point : 3 Justification : trained on proper interaction with healthcare professionals, patients and society	Point : 3 Justification : elements of social commitment and professional commitment imparted in training		Point : 3 Justification : life long learning experience imparted by updating changes in treatment guidelines				
4.3	Point : 3 Justification		Point : 3 Justification	Point : 2 Justification		Point : 2 Justification :	Point : 3 Justification :	Point : 2 Justification :	Point : 2 Justification		Point : 3 Justification				

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
	: imparted excellent knowledge in relevant area		: trained for problem analysis in each case	: usage of relevant drug information databases, secondary resource		element of upholding professional identity in doing the activity imparted	inculcated importance of maintaining confidentiality in patient data usage and also imparted importance of providing accurate and relevant patient care	trained on proper interaction with healthcare professionals, patients and society	: elements of social commitment and professional commitment imparted in training		: life long learning experience imparted by updating changes in treatment guidelines				
4.3	Point : 3 Justification : imparted excellent knowledge in relevant area		Point : 3 Justification : trained for problem analysis in each case	Point : 2 Justification : usage of relevant drug information databases, secondary resource		Point : 2 Justification : element of upholding professional identity in doing the activity imparted	Point : 3 Justification : inculcated importance of maintaining confidentiality in patient data usage and also imparted importance of providing accurate and relevant patient care	Point : 3 Justification : trained on proper interaction with healthcare professionals, patients and society	Point : 3 Justification : elements of social commitment and professional commitment imparted in training		Point : 3 Justification : life long learning experience imparted by updating changes in treatment guidelines				
4.3	Point : 3 Justification : imparted excellent knowledge in relevant area		Point : 3 Justification : trained for problem analysis in each case	Point : 2 Justification : usage of relevant drug information databases, secondary resource		Point : 2 Justification : element of upholding professional identity in doing the activity imparted	Point : 3 Justification : inculcated importance of maintaining confidentiality in patient data usage and also imparted importance of providing accurate and relevant patient care	Point : 2 Justification : trained on proper interaction with healthcare professionals, patients and society	Point : 1 Justification : elements of social commitment and professional commitment imparted in training		Point : 1 Justification : life long learning experience imparted by updating changes in treatment guidelines				
Average Score	3		3	2		2	3	2.6	2.4		2.6				



Nirmala College of Pharmacy, Muvattupuzha

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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2019-2025
Semester	4
Subject	Biostatistics & Research Methodology

SI.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	PD 4.4 T.1	Describe the basic concepts involved in the designing and planning of a Research Work, the steps involved in conducting the research and they should be able to write and report the data obtained from the study.		Understand	Jobin Kunjumon Vilapurathu
2	PD 4.4 T.2	Know the various statistical methods to solve different types of problems and to appreciate the statistical technique in solving the pharmaceutical problems		Understand	Jobin Kunjumon Vilapurathu
3	PD 4.4 T.3	appreciate the importance of Computer in hospital and Community Pharmacy and to know various techniques for the drug information retrieval and storage		Apply	Jobin Kunjumon Vilapurathu

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2019-2025
Semester	4
Subject	Biostatistics & Research Methodology

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
PD 4.4 T.1		Point : 3 Justification : The students must be able to design and plan a Research Project.	Point : 3 Justification : Shoutents must be able to understand the research question and form a valid ypotheisis inorder to solve it.	Point : 1 Justification : Students must be having basic knowledge about computer program's like Microsoft Excel				Point : 3 Justification : Students must be able to communicate the Research question effectively			Point : 2 Justification : Students must be able to constantly follow and learn the changing trends in Research	Point : 1 Justification : The students must be able to design and plan a Research Project.			
PD 4.4 T.2		Point : 3 Justification : Students must be able to plan the Statistical models for Significance testing in prior so that proper collection of data can be done.	Point : 3 Justification : Should be able to solve various Statistical probles	Point : 3 Justification : Should have knowledge on the use of various Statistical Softwares									Point : 2 Justification : Students must be able to plan the Statistical models for Significance testing in prior so that proper collection of data can be done.		
PD 4.4 T.3		Point : 2 Justification : Students must be able to plan the Inventory levels of Drugs in various Pharmacies		Point : 3 Justification : Should have good knowlege on the use of Computers					Point : 1 Justification : must be able to cater the needs of the society in a faster way		Point : 2 Justification : The changing patterns and modernization of softwares must be adapted			Point : 2 Justification : Should have good knowlege on the use of Computers	Point : 1 Justification : Should have knowledge on the use of various Statistical Softwares

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
Average Score		2.66666666666667	3	2.33333333333333				3	1		2	1	2	2	1

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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2019-2025
Semester	4
Subject	Biopharmaceutics & Pharmacokinetics

SI.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO1	Describe the concept behind the biopharmaceutics, pharmacokinetics and design of dose and dosage regimen	Basic ADME	Understand	Dhanish Joseph
2	CO2	Use plasma data and derive the pharmacokinetic parameters to describe the process of drug absorption, distribution, metabolism and elimination.	Pharmacokinetics	Apply	Dhanish Joseph
3	CO3	Design and evaluate dosage regimens of the drugs using pharmacokinetic and biopharmaceutic parameters.	Pharmacokinetic principles	Evaluate	Dhanish Joseph
4	CO4	Critically evaluate biopharmaceutic studies involving drug product equivalency and Assess the reason for poor bioavailability of drug and methods to overcome the poor bioavailability	Bioavailability and bioequivalence	Evaluate	Dhanish Joseph
5	CO5	Detect potential clinical pharmacokinetic problems and apply basic pharmacokinetic principles to solve them	Pharmacokinetics	Evaluate	Dhanish Joseph

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2019-2025
Semester	4
Subject	Biopharmaceutics & Pharmacokinetics

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
CO1	Point : 3 Justification : The student will able to design of dose and dosage regimen	Point : 1 Justification : To perform this CO, the student need to plan the various aspects. this planning may create a planning ability	Point : 3 Justification : Detection of compartment mode, kinetic parameters , dose and dosage regimen help to improve problem solving methods and give more insight to problem analysis					Point : 3 Justification : The verbal and written communication is only through, english. this gives a better understanding on language more over confidence in public communication	Point : 1 Justification : The knowledge gained under this CO can be utilised for the welfare of society and to educate them						
CO2	Point : 3 Justification : The student will able to derive the pharmacokinetic parameters to describe the process of drug absorption, distribution, metabolism and elimination.	Point : 1 Justification : ability	Point : 3 Justification : Detection of compartment mode, kinetic parameters , dose and dosage regimen help to improve problem solving					Point : 3	Point : 1 Justification : The knowledge gained under this CO can be utilised for the welfare of society and to educate them						

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life- long learning	PSO.01	PSO.02	PSO.03	PSO.04
			methods and give more insight to problem analysis												
CO3	Point : 3 Justification : The studne twill able to Design and evaluate dosage regimens of the drugs	Point : 1 Justification : ability	Point : 3 Justification : Detection of compartment mode, kinetic parameters , dose and dosga eregime help to improve problem solving methods and give more insight to problem analysis					Point : 3	Point : 1 Justification : The knowldge gained undr this CO can be utilised for the welfare of society and to educte them						
CO4	Point : 3 Justification : The studnet will able to	Point : 1 Justification : ability	Point : 3 Justification : Detection of compartment mode, kinetic parameters , dose and dosga eregime help to improve problem solving methods and give more insight to problem analysis					Point : 3	Point : 1 Justification : The knowldge gained undr this CO can be utilised for the welfare of society and to educte them						
CO5	Point : 3 Justification : The studne t will Detect potential clinical pharmacokinetic problems and apply basic pharmacokinetic	Point : 1 Justification : ability	Point : 3 Justification : Detection of compartment mode, kinetic parameters , dose and dosga					Point : 3	Point : 1 Justification : The knowldge gained undr this CO can be utilised for the welfare of						

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life- long learning	PSO.01	PSO.02	PSO.03	PSO.04
	principles to solve them		eregime help to improve problem solving methods and give more insight to problem analysis						society and to educte them						
Average Score	3	1	3					3	1						

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Nirmala College of Pharmacy, Muvattupuzha

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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2019-2025
Semester	4
Subject	Clinical Toxicology

SI.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO PD 4.6 T.1	Describe general principles involved in the management of poisoning	General management of poisoning	Understand	Elayath Parvathy Murali
2	CO PD 4.6 T.2	Differentiate and manage the clinical symptoms of various acute poisonings	Acute poisoning	Apply	Elayath Parvathy Murali
3	CO PD 4.6 T.3	Differentiate and manage the clinical symptoms of various chronic poisonings by heavy metals	Heavy metal poisoning	Apply	Elayath Parvathy Murali
4	CO PD 4.6 T.4	Evaluate the clinical symptoms and management of envenomation, snake bites, food poisoning and poisoning by various plants	Envenomations and food poisoning	Understand	Elayath Parvathy Murali
5	CO PD 4.6 T.5	Evaluate, minimize and prevent the substance abuse cases in local population	Management of substance abuse	Apply	Elayath Parvathy Murali

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2019-2025
Semester	4
Subject	Clinical Toxicology

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
CO PD 4.6 T.1	Point : 3 Justification : The student will acquire strong fundamental concepts regarding basic principles of management of poisoning	Point : 2 Justification : The student will be able to plan first aid management in emergency cases of poisoning	Point : 2 Justification : Skills for problem analysis will be developed	Point : 1 Justification : Develop solutions for contemporary problems using modern tools		Point : 2 Justification : Will understand, analyze and communicate the value of their professional roles in poisoning management	Point : 2 Justification : will demonstrate knowledge of professional and ethical responsibilities as per pharmaceutical jurisprudence	Point : 2 Justification : Demonstrate the ability of verbal communication and writing reports and to lead the team effectively	Point : 3 Justification : will demonstrate the impact of pharmacy knowledge in poisoning on the society		Point : 2 Justification : Self-access and use feedback effectively from others to identify learning needs				
CO PD 4.6 T.2	Point : 3 Justification : he student will acquire strong fundamental concepts regarding basic principles of management of acute poisoning with commonly used drugs	Point : 2 Justification : The student will be able to plan first aid management in emergency cases of acute poisoning	Point : 2 Justification : Scientific thinking will help in problem analysis	Point : 1 Justification : will acquire the ability to develop newer antidotes	Point : 1 Justification : Graduates will develop interpersonal skills by leading others	Point : 2 Justification : Pharmacists will adhere to code of ethics of Pharmacy Council of India in relation to community	Point : 2 Justification : Pharmacists will adhere to code of ethics of Pharmacy Council of India in relation to community	Point : 2 Justification : will acquire excellent interpersonal oral communication and writing skills	Point : 2 Justification : They will create awareness of healthcare issues through interactions with others	Point : 1 Justification : The students will be able to devise sustainable methods of poisoning management	Point : 3 Justification : Graduates will recognize the need for life long learning about different antidotes				
CO PD 4.6 T.3	Point : 3 Justification : he student will acquire strong fundamental concepts regarding basic	Point : 2 Justification : The student will be able to plan first aid management in emergency cases of	Point : 2 Justification : Scientific thinking will help in problem analysis	Point : 1 Justification : will acquire the ability to develop newer antidotes	Point : 1 Justification : Graduates will develop interpersonal skills by leading others	Point : 2 Justification : Pharmacists will adhere to code of ethics of Pharmacy Council of	Point : 2 Justification : Pharmacists will adhere to code of ethics of Pharmacy Council of India	Point : 2 Justification : will acquire excellent interpersonal oral communication and writing skills	Point : 2 Justification : They will create awareness of healthcare issues	Point : 1 Justification : The students will be able to devise sustainable methods of	Point : 3 Justification : Graduates will recognize the need for life long learning				

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO.04
	principles of management of acute poisoning with commonly used heavy metals	achronic heavy metal poisoning				India in relation to community	in relation to community		through interactions with others	poisoning management	about different antidotes				
CO PD 4.6 T.4	Point : 2 Justification : Graduates will acquire strong concepts regarding knowledge of envenomations	Point : 2 Justification : Graduates will utilize the principles of scientific enquiry while planning management of envenomations	Point : 1 Justification : utilise critical thinking while solving problems and making decisions during daily practice	Point : 1 Justification : Discover newer antidotes with the help of modern resources	Point : 2 Justification : will be able to lead and function both individually and as a member of a team	Point : 2 Justification : will understand and analyze the value of their professional roles in society	Point : 2 Justification : will retrieve, evaluate, and apply current drug information in the delivery of pharmaceutical care	Point : 1 Justification : The graduates will acquire excellent interpersonal communication and writing skills	Point : 2 Justification : will create awareness of healthcare issues through interactions with others and will gain a sense of self-respect towards community and citizenship	Point : 1 Justification : Develop solutions for contemporary problems using modern tools for sustainable development	Point : 3 Justification : Graduates will recognize the need for independent and life-long learning in the broadest context of technological change				
CO PD 4.6 T.5	Point : 2 Justification : Graduates will acquire strong concepts regarding knowledge of substance abuse	Point : 1 Justification : Graduates will utilize the principles of scientific enquiry while planning management of substance abuse	Point : 2 Justification : use critical thinking while solving problems and making decisions during daily practice	Point : 1 Justification : Discover newer deaddiction techniques with the help of modern resources	Point : 1 Justification : will be able to lead and function both individually and as a member of a team	Point : 2 Justification : will communicate the value of their professional roles in society	Point : 2 Justification : will retrieve, evaluate, and apply current drug information in the delivery of pharmaceutical care	Point : 1 Justification : Demonstrate the ability of verbal communication and writing reports and to lead the team effectively	Point : 2 Justification : will create awareness of healthcare issues through interactions with others and will gain a sense of self-respect towards community and citizenship	Point : 1 Justification : Develop solutions for contemporary problems using modern tools for sustainable development	Point : 2 Justification : Graduates will recognize the need for independent and life-long learning in the broadest context of technological change				
Average Score	2.6	1.8	1.8	1	1.25	2	2	1.6	2.2	1	2.6				



Nirmala College of Pharmacy, Muvattupuzha

Muvattupuzha P.O Ernakulam District Kerala, India, Pin:686661

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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2019-2025
Semester	4
Subject	Pharmacotherapeutics-III - Practical

SI.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	1	To prepare SOAP (subjective, objective, assessment and plan) notes for selected cases		Understand	Suja Abraham
2	2	To educate the patients regarding proper use of medicines/devices and life style modifications required		Apply	Suja Abraham
3	3	To check the appropriateness of the prescription based on the clinical condition of the patient (pediatric, geriatric, pregnancy/lactation, renal/hepatic impairment)		Evaluate	Suja Abraham

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Nirmala College of Pharmacy, Muvattupuzha

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2019-2025
Semester	4
Subject	Pharmacotherapeutics-III - Practical

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PSO.03	PSO
1	Point : 3 Justification : Need to know the normal physiology and laboratory values	Point : 2 Justification : Should plan the time for analysis of cases	Point : 3 Justification : Objective values should be correlated with subjective evidence	Point : 3 Justification : Use drug information softwares for analysing the cases	Point : 2 Justification : Learn the indication of each drug in different clinical conditions	Point : 3 Justification : Case analysis skill improves	Point : 2 Justification : Ethics should be considered while analysing each case	Point : 3 Justification : Findings of case analysis should be presented effectively	Point : 2 Justification : Should be able to clear the doubts of the patients		Point : 3 Justification : Should be updated with recent developments				
2	Point : 3 Justification : Knowledge about drug and the indication is necessary	Point : 3 Justification : Plan the time for effective counselling	Point : 3 Justification : Demonstrate the proper use of devices	Point : 3 Justification : Use drug information softwares for medication counselling and device counselling	Point : 2 Justification : Educate the patient about the modification to be made in the lifestyle	Point : 3 Justification : Patient counselling skills improves	Point : 3 Justification : Unbiased information should be given to patient	Point : 3 Justification : Should be able to create a rapport with patient through effective counselling	Point : 3 Justification : Pharmacists responsibility towards medication safety can be achieved	Point : 2 Justification : Continuous monitoring and education is necessary to ensure safe use of medicines	Point : 3 Justification : Newer medications and safety alerts should be checked periodically				
3	Point : 3 Justification : Should know the dose adjustment in special population	Point : 3 Justification : Should be able to check the appropriateness as per the observed condition	Point : 3 Justification : Check the medication errors and drug interactions	Point : 3 Justification : Use drug information softwares for appropriateness of therapy	Point : 2 Justification : By analysing the appropriateness of each prescription, student will be able to confidently communicate with patients and other healthcare professionals	Point : 3 Justification : Pharmacists role is emphasized	Point : 3 Justification : Drug and dose selection should be ethically correct	Point : 3 Justification : Through case presentation, students will be able to communicate with healthcare professionals regarding the rationality of prescription	Point : 3 Justification : Burden of disease can be minimized by proper education to the patients	Point : 2 Justification : Drug related problems can be minimized	Point : 3 Justification : Individualised therapeutic plan should be practised				
Average Score	3	2.6666666666667	3	3	2	3	2.6666666666667	3	2.6666666666667	2	3				

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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2019-2025
Semester	4
Subject	Hospital Pharmacy- Practical

SI.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	phd.4.2.2	To Systematic Approach for the given query		Create	Merrin Joseph
2	phd.4.2.1	To analyze the drug interactions in a given medication chart		Analyze	Merrin Joseph
3	phd.4.2.3	To know the basics of different formulations and the perfect method for warehousing of a pharmacy store		Apply	Merrin Joseph

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2019-2025
Semester	4
Subject	Hospital Pharmacy- Practical

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	Environment and sustainability	Long learning					SO.04
phd.4.2.2	Point : 3 Justification : improves pharmacy knowledge	Point : 3 Justification : plan in accordance with patients condition and therapy administered	Point : 3 Justification : helps in identifying drug and patient related factors in modifying drug therapy	Point : 3 Justification : use of modern softwares		Point : 3 Justification : enhances role of pharmacist	Point : 3 Justification : practice of pharmaceutical ethics in deciding patients therapy		Point : 2 Justification : improves the health of patients		Point : 3 Justification : life long learning in updating knowledge.					
phd.4.2.1	Point : 3 Justification : use of knowledge in the area of pharmacy in analysing cases	Point : 3 Justification : based up on the query ,know more about patient therapy	Point : 3 Justification : identifies patient factos in monitoring drug therapy	Point : 3 Justification : Using of modern softwares in pharmacy field		Point : 3 Justification : improves in updating knowledge		Point : 3 Justification : improve communication skills	Point : 3 Justification : social commitment and give the best individualized therapy		Point : 3 Justification : life long learning in updating knowledge.					
phd.4.2.3	Point : 3 Justification : Know thw preparation and store management	Point : 3 Justification : knowing the best warehousing methods		Point : 3 Justification : usage of available pharmacy stockage softwares			Point : 3 Justification : provide the naffordable and best drugs to customers		Point : 3 Justification : maximum professional ethics							
Average Score	3	3	3	3		3	3	3	2.66666666666667		3					

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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2019-2025
Semester	4
Subject	Clinical Pharmacy - Practical

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	4.3 P	Monitor drug therapy of the patient through medication chart review and clinical review		Apply	Anriya Annie Tom
2	4.3 P	Conduct the medication history interview and counsel the patients		Apply	Anriya Annie Tom
3	4.3 P	Detect, assess and monitor adverse drug reactions (ADR)		Evaluate	Anriya Annie Tom
4	4.3 P	Provide drug / poison information services by retrieving, analyzing, interpreting and formulate drug and medicine information by utilizing various databases and softwares		Create	Anriya Annie Tom
5	4.3 P	Interpret selected laboratory results (as monitoring parameters) of specific disease states		Analyze	Anriya Annie Tom

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CO-PO Mapping

Institute		Nirmala College of Pharmacy, Muvattupuzha												
Course		Pharm D												
Batch		2019-2025												
Semester		4												
Subject		Clinical Pharmacy - Practical												
	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO.01	PSO.02	PS
4.3 P	Point : 3 Justification : imparted good knowledge in the specified field		Point : 3 Justification : trained on problem analysis of each patient	Point : 2 Justification : Justification : usage of relevant drug information databases, secondary resource		Point : 2 Justification : Justification : element of upholding professional identity in doing the activity imparted	Point : 3 Justification : Justification : inculcated importance of maintaining confidentiality in patient data usage and also imparted importance of providing accurate and relevant patient care	Point : 3 Justification : Justification : trained on proper interaction with healthcare professionals, patients and society	Point : 3 Justification : Justification : elements of social commitment and professional commitment imparted in training		Point : 3 Justification : Justification : life long learning experience imparted by updating changes in treatment guidelines			
4.3 P	Point : 3 Justification : imparted good knowledge in the specified field		Point : 3 Justification : trained on problem analysis of each patient	Point : 2 Justification : Justification : usage of relevant drug information databases, secondary resource		Point : 2 Justification : Justification : element of upholding professional identity in doing the activity imparted	Point : 3 Justification : Justification : inculcated importance of maintaining confidentiality in patient data usage and also imparted importance of providing accurate and relevant patient care	Point : 3 Justification : Justification : trained on proper interaction with healthcare professionals, patients and society	Point : 3 Justification : Justification : elements of social commitment and professional commitment imparted in training		Point : 3 Justification : Justification : life long learning experience imparted by updating changes in treatment guidelines			
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4.3 P	Point : 3 Justification : imparted good knowledge in the specified field		Point : 3 Justification : trained on problem analysis of each query	Point : 2 Justification : Justification : usage of relevant drug information databases, secondary resource		Point : 2 Justification : Justification : element of upholding professional identity in doing the activity imparted	Point : 3 Justification : Justification : inculcated importance of maintaining confidentiality in patient data usage and also imparted importance of providing accurate and relevant patient care	Point : 3 Justification : Justification : trained on proper interaction with healthcare professionals, patients and society	Point : 3 Justification : Justification : elements of social commitment and professional commitment imparted in training		Point : 3 Justification : Justification : life long learning experience imparted by updating changes in treatment guidelines			
4.3 P	Point : 3 Justification : imparted good knowledge in the specified field		Point : 3 Justification : trained on problem analysis of each patient	Point : 2 Justification : Justification : usage of relevant drug information databases, secondary resource		Point : 2 Justification : Justification : element of upholding professional identity in doing the activity imparted	Point : 3 Justification : Justification : inculcated importance of maintaining confidentiality in patient data usage and also imparted importance of providing accurate and relevant patient care	Point : 2 Justification : Justification : trained on proper interaction with healthcare professionals, patients and society	Point : 1 Justification : Justification : elements of social commitment and professional commitment imparted in training		Point : 3 Justification : Justification : life long learning experience imparted by updating changes in treatment guidelines			
Average Score	3		3	2		2	3	2.6	2.4		3			



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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2019-2025
Semester	4
Subject	Biopharmaceutics & Pharmacokinetics - Practical

SI.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO1	The students can analyze the quality and pharmaceutical equivalence of various solid dosage forms and Able to enhance the bioavailability of poorly solid dosage forms	Experiment 1,2,3,6	Analyze	Dhanish Joseph
2	CO2	Explain the principle and concept of protein binding and its significance in the distribution	Experiment 4, 5,13	Understand	Dhanish Joseph
3	CO3	Apply the knowledge of basic pharmacokinetics and determine the pharmacokinetic parameters from blood for the drug administered over various routes of administration	Experiment 7,8,9	Apply	Dhanish Joseph
4	CO4	Apply the knowledge of basic pharmacokinetics and determine the pharmacokinetic parameters from urin for the drug administered over various routes of administration	Experiment 14,15,16	Apply	Dhanish Joseph
5	CO5	Demonstrate the invitro methods to determine the bioequivalence.	Experiment 10, 12	Apply	Dhanish Joseph

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CO-PO Mapping

Institute		Nirmala College of Pharmacy, Muvattupuzha														
Course		Pharm D														
Batch		2019-2025														
Semester		4														
Subject		Biopharmaceutics & Pharmacokinetics - Practical														
	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long Learning	PSO.01	PSO.02	PSO.03	PSO.04	
CO1	Point : 3 Justification : The Experiments performed provide ample of knowledge in practice of pharmacy	Point : 2 Justification : The timely performance and completion of each experiment help develop planning abilities in students	Point : 3 Justification : The assessment of Bioavailability and the various methods adopted to improve the bioavailability helps to overcome the problem of poor bioavailability				Point : 1 Justification : The ethical mode of performance , reporting and assessment ensures the student gain the knowledge on pharmaceutical ethics	Point : 3 Justification : The combined experimentation, discussion , viva etc may improve the verbal and non verbal communication			Point : 2 Justification : The knowledge about the topic act as the basics for future study and research in the upcoming years. As well as this is a stepping stone in the career.	Point : 3 Justification : This Possess extensive knowledge in various domains of pharmacy practice		Point : 1 Justification : The topic provides professional skills in academic and research activities		
CO2	Point : 3 Justification : The Experiments performed provide ample of knowledge in practice of pharmacy	Point : 2 Justification : students	Point : 1 Justification : able to analyse the low distribution of drugs				Point : 1 Justification : The ethical mode of performance , reporting and assessment ensures the student gain the knowledge on pharmaceutical ethics	Point : 3 Justification : The combined experimentation, discussion , viva etc may improve the verbal and non verbal communication			Point : 2 Justification : The knowledge about the topic act as the basics for future study and research in the upcoming years. As well as this is a stepping stone in the career.	Point : 3 Justification : This Possess extensive knowledge in various domains of pharmacy practice	Point : 3 Justification : this outcome may help to develop individualized treatment plan can be developed	Point : 1 Justification : The topic provides professional skills in academic and research activities		
CO3	Point : 3 Justification : The Experiments performed provide ample of knowledge in practice of pharmacy	Point : 2 Justification : students					Point : 1 Justification : The ethical mode of performance , reporting and assessment ensures the student gain the knowledge on pharmaceutical ethics	Point : 3 Justification : The combined experimentation, discussion , viva etc may improve the verbal and non verbal communication			Point : 2 Justification : The knowledge about the topic act as the basics for future study and research in the upcoming years. As well as this is a stepping stone in the career.	Point : 3 Justification : This Possess extensive knowledge in various domains of pharmacy practice	Point : 3 Justification : this outcome may help to develop individualized treatment plan can be developed	Point : 3 Justification : The topic provides professional skills in academic and research activities	Point : 3 Justification : Proficient to excel in Industry oriented activities such as clinical research	
CO4	Point : 3 Justification : The Experiments performed provide ample of knowledge in practice of pharmacy	Point : 2 Justification : students					Point : 1 Justification : The ethical mode of performance , reporting and assessment ensures the student gain the knowledge on pharmaceutical ethics	Point : 3 Justification : The combined experimentation, discussion , viva etc may improve the verbal and non verbal communication			Point : 2 Justification : The knowledge about the topic act as the basics for future study and research in the upcoming years. As well as this is a stepping stone in the career.	Point : 3 Justification : This Possess extensive knowledge in various domains of pharmacy practice	Point : 3 Justification : this outcome may help to develop individualized treatment plan can be developed	Point : 3 Justification : The topic provides professional skills in academic and research activities	Point : 3 Justification : Proficient to excel in Industry oriented activities such as clinical research	
CO5	Point : 3 Justification : The Experiments performed provide ample of knowledge in practice of pharmacy	Point : 2 Justification : students	Point : 3 Justification : the methods , and its difficulty in performin the experiment is known to them. They can design he method to overcome the probles ocured during the experiment				Point : 1 Justification : The ethical mode of performance , reporting and assessment ensures the student gain the knowledge on pharmaceutical ethics	Point : 3 Justification : The combined experimentation, discussion , viva etc may improve the verbal and non verbal communication			Point : 2 Justification : The knowledge about the topic act as the basics for future study and research in the upcoming years. As well as this is a stepping stone in the career.	Point : 3 Justification : This Possess extensive knowledge in various domains of pharmacy practice		Point : 1 Justification : The topic provides professional skills in academic and research activities		
Average Score	3	2	2.33333333333333				1	3			2	3	3	1.8	3	

2.6.1:
Course Outcomes (COs)

Program: pharm D

Batch: 5th year





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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2018-2024
Semester	5
Subject	Clinical Research

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	PSO,01
PD 5.1 T.1	Point : 1 Justification : Basic understanding on drugs and mechanisms of actions are necessary	Point : 3 Justification : The students must be able to plan the research work	Point : 2 Justification : Understand about the new problems faced in the therapy of diseases is needed									Point : 2 Justification : Understand about the new problems faced in the therapy of diseases needed
PD 5.1 T.2				Point : 1 Justification : students must be able to operate the basic software for planning and conducting the trials			Point : 1 Justification : Basic ethics to be followed in drug research must be understood	Point : 2 Justification : Students must require excellent communication skills				
Average Score	1	3	2	1			1	2				2

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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2018-2024
Semester	5
Subject	Clinical Research

SI.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	PD 5.1 T.1	At the end of this topic the student should be able to describe the concept of new drug development process		Understand	Jobin Kunjumon Vilapurathu
2	PD 5.1 T.2	At the end of this topic the students should be able to describe the various phases of clinical trials, Recognize the regulatory and ethical requirements in clinical trials, Recognize the roles and responsibilities of clinical trial study team & to Discuss various procedures and activities involved in the conduct of clinical trials		Apply	Jobin Kunjumon Vilapurathu

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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2018-2024
Semester	5
Subject	Pharmacoepidemiology and Pharmacoeconomics

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO1	Understand the need of pharmacoepidemiological studies and its application		Understand	Suja Abraham
2	CO2	Describe the outcome measures and the concepts of risks in pharmacoepidemiology		Understand	Suja Abraham
3	CO3	Evaluate the methodology of different pharmacoepidemiological studies		Evaluate	Suja Abraham
4	CO4	Compare and interpret pharmacoeconomic studies using case studies		Evaluate	Suja Abraham
5	CO5	Demonstrate the application of pharmacoeconomics using softwares		Create	Suja Abraham

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2018-2024
Semester	5
Subject	Pharmacoepidemiology and Pharmacoeconomics

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Professional Communication
CO1	Point : 3 Justification : Knowledge on the need of pharmacoepidemiologic studies and its application	Point : 3 Justification : Helps in formulating the aim/ objectives and methodology of the research project	Point : 3 Justification : Help in framing the hypothesis and analyzing the statistical findings	Point : 2 Justification : Can be used in Project data collection and analysis of results	Point : 1 Justification : Pharmacoepidemiologic studies help to report case studies and case series	Point : 3 Justification : Evaluate the clinical problems and provide recommendations based on defined daily dose and prescribed daily dose	Point : 2 Justification : Realize the importance of ethical aspect in research	Point : 2 Justification : Understand the problems related to the validity of findings and issues of interpretations
CO2	Point : 3 Justification : Knowledge on outcome measures in pharmaco epidemiologic studies	Point : 2 Justification : Plan the pharmaco epidemiological studies based on the calculation of incidence and prevalence	Point : 2 Justification : Critically analyze the articles related to pharmacoepidemiologic studies	Point : 2 Justification : Can be applied to drug utilization reviews, meta-analysis and medication adherence measurement	Point : 2 Justification : Can resolve the concerns related to disease and treatment through pharmacoepidemiological studies	Point : 2 Justification : Able to explain measures of disease occurrence and its association with risk factors	Point : 2 Justification : Ethical evaluation criteria should be made for pharmacoepidemiological studies	Point : 2 Justification : Compare contrasts study des communi healthcar professio
CO3	Point : 3 Justification : Knowledge on methodology of different pharmaco epidemiologic studies	Point : 2 Justification : Can determine the sample size and plan the methodology accordingly	Point : 3 Justification : Risk calculations and predictions can be done	Point : 3 Justification : Knowledge and skill on Automated data system and record linkage system is required	Point : 1 Justification : Communicate with other healthcare providers	Point : 2 Justification : Can conduct surveys, cross sectional or case control studies which reveals our professional identity	Point : 2 Justification : Ethical evaluation criteria should be made for pharmacoepidemiological studies	Point : 2 Justification : Demonstrate computer design, and eval. Pharmaco studies
CO4	Point : 3 Justification : Knowledge on pharmaco economic studies	Point : 2 Justification : Plan the pharmaco economic evaluation method based on the burden of disease	Point : 3 Justification : Various flow charts and modelling can be done	Point : 3 Justification : Decision trees can be prepared and the probabilities of each transition state can be calculated	Point : 2 Justification : Helps to identify the burden of disease, thereby suggestions can be done for reducing the healthcare cost	Point : 3 Justification : Can explain the need for pharmaco economic studies in case of expensive treatment options	Point : 2 Justification : Understand the ethical concerns in the methods to measure outcomes of pharmaco economic studies	Point : 2 Justification : Choose the suitable software in evaluate and bene therapy
CO5	Point : 3 Justification : Knowledge on various software used in pharmaco economic studies	Point : 2 Justification : Plan the alternative treatment option based on the prediction of outcome	Point : 2 Justification : Evaluation of incremental cost can be determined	Point : 2 Justification : Modern tools help to choose the alternative or comparative treatment modalities based on transition states and probabilities	Point : 1 Justification : Select appropriate statistical techniques for analysing the findings	Point : 2 Justification : Sound knowledge and on statistical concepts	Point : 2 Justification : Ethical concerns in the current pharmaco economic evaluation methods while using suitable software should be determined	Point : 2 Justification : Choose the suitable software in evaluate and bene therapy
Average Score	3	2.2	2.6	2.4	1.4	2.4	2	2



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Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2018-2024
Semester	5
Subject	Clinical Pharmacokinetics & Pharmacotherapeutic Drug Monitoring

SI.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	PD 5.1	Formulate and design a dosage regimen for individual patients		Create	Dona Maria Jetto
2	PD5.2	Interpret and correlate the plasma drug concentration with patient's therapeutic outcomes		Evaluate	Dona Maria Jetto
3	PD 5.3	Recommend dosage adjustment in renal and hepatic disease		Apply	Dona Maria Jetto
4	PD5.4	Recommend dosage adjustment for paediatrics, geriatrics and obese patients		Create	Dona Maria Jetto
5	PD5.5	Analyze and resolve pharmacokinetic drug interactions		Analyze	Dona Maria Jetto

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CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	Pharm D
Batch	2018-2024
Semester	5
Subject	Clinical Pharmacokinetics & Pharmacotherapeutic Drug Monitoring

	PO1: Pharmacy Knowledge:	PO2: Planning Abilities	PO3: Problem analysis	PO4: Modern tool usage	PO5: Leadership skills	PO6: Professional Identity	PO7: Pharmaceutical Ethics	PO8: Communication	PO9: The Pharmacist and society	PO10: Environment and sustainability	PO11: Life-long learning	P
PD 5.1	Point : 3 Justification : enhance pharmacy knowledge in pharmacy in designing dosage regimen.	Point : 3 Justification : design regimen based on patient conditions	Point : 3 Justification : analyse patient issues	Point : 2 Justification : new methodologies in designing dosage regimen	Point : 2 Justification : enhance pharmacist abilities in designing dosage regimen	Point : 3 Justification : enhances professional identity.		Point : 2 Justification : improves communication skills	Point : 1 Justification : evelops new methodologies		Point : 3 Justification : continous learning	P 1
PD5.2	Point : 3 Justification : use of pharmacy knowledge in developing regimen	Point : 3 Justification : plan therapy using ents plaslevels ma pati	Point : 3 Justification : identifies issues in therapy givne	Point : 3 Justification : use of new diagnostic methods in assessing therapeutic efficacy	Point : 2 Justification : imprves leadership skills	Point : 2 Justification : widened roleof pharmacist	Point : 1 Justification : fguides in decision making	Point : 2 Justification : develops communicaion skills	Point : 1 Justification : enhances patients health			
PD 5,3	Point : 3	Point : 2										
PD5,4	Point : 3	Point : 2										
PD5,5	Point : 3	Point : 1										
Average Score	3	2.2	3	2.5	2	2.5	1	2	1		3	1

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