



# **NIRMALA COLLEGE OF PHARMACY MUVATTUPUZHA**

Muvattupuzha P.O., Ernakulam Dist., Kerala - 686661

Telephones: 0485 2836888, 0485 2830666

Email: [nip\\_mvpa@yahoo.co.in](mailto:nip_mvpa@yahoo.co.in) Website: [www.nirmalacp.org](http://www.nirmalacp.org)

## **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**

## INDEX

### Course Outcomes (COs) for B Pharm Programmes offered by the institution

Sl no	Content	View Page
1.	1 <sup>st</sup> semester Bpharm	<a href="#">view</a>
2.	2 <sup>nd</sup> semester Bpharm	<a href="#">view</a>
3.	3 <sup>rd</sup> semester Bpharm	<a href="#">view</a>
4.	4 <sup>th</sup> semester Bpharm	<a href="#">view</a>
5.	5 <sup>th</sup> semester Bpharm	<a href="#">view</a>
6.	6 <sup>th</sup> semester Bpharm	<a href="#">view</a>
7.	7 <sup>th</sup> semester Bpharm	<a href="#">view</a>
8.	8 <sup>th</sup> semester Bpharm	<a href="#">view</a>



---

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

**B pharm**

---



**2.6.1:**  
**Course Outcomes (COs)**

**Program: B pharm**

**Batch: I<sup>st</sup> semester**

---





# 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	B Pharm
Batch	2022-2026
Semester	1
Subject	Human Anatomy and Physiology I – Theory

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	BP101T.1	Explain the gross morphology, structure and functions of various organs of the human body	study the gross morphology, structure and functions of various organs of the human body	Understand	Nancy Jose
2	BP101T.2	Describe the various homeostatic mechanisms and their imbalances	study the various homeostatic mechanisms and their imbalances	Understand	Nancy Jose
3	BP101T.3	Identify the various tissues and organs of different systems of human body	differentiate and study the various tissues and organs of different systems of human body	Understand	Nancy Jose
4	BP101T.4	To explain the physiology of special senses and nervous system	the physiology of special senses like vision, hearing, touch and smell and nervous system	Analyze	Nancy Jose
5	BP101T.5	Appreciate coordinated working pattern of different organs of each system	understand the coordinated working pattern of different organs of each system	Analyze	Nancy Jose

Generated at : 06/06/2023 09:33:20





# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha
Course	B Pharm
Batch	2022-2026
Semester	1
Subject	Human Anatomy and Physiology I– 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
BP101T.1	Point : 3 Justification : A deep knowledge on Explain the gross morphology, structure and functions of various organs of the human body	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.
BP101T.2	Point : 3 Justification : A deep knowledge on feedback mechanism and its effect.	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
BP101T.3	Point : 3 Justification : A thorough knowledge			Point : 3 Justification : Use the modern		Point : 3 Justification : As a healthcare professional help	Point : 3 Justification : Making prompt decision while	Point : 1 Justification : The anatomical structures/organization	Point : 3 Justification : Proper Reasoning		Point : 3 Justification : Researching

	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
	in various tissues and organs of different systems of human body			diagnostic techniques or instruments to demonstrate and understand the anatomy		the patients to know their body physiology	coming across any issues regarding human anatomy	can be properly communicated	and intellectual capacity in health care facilitates to contribute significantly to the needy people in the society.		and updating with facts on human body help to self assessment.
BP101T.4	Point : 3 Justification : A vast and deep knowledge in cellular chemistry, function, and signaling mechanisms in human physiology of special senses and neurons			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 causes of various diseases	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.
BP101T.5	Point : 3 Justification : A sound knowledge in the coordinated working pattern of different organs of each system	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 : 3 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	3	1	2.8	3	1.8	3	1	3



# 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	B Pharm
Batch	2022-2026
Semester	1
Subject	Pharmaceutical Analysis I – Theory

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	BP102T.1	Understand 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.	Understand 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.	Understand	Elseena Jose
2	BP102T.2	Gain an understanding of common laboratory techniques and gravimetric analysis for quantitative analysis of pharmaceuticals.	Gain an understanding of common laboratory techniques and gravimetric analysis for quantitative analysis of pharmaceuticals.	Apply	Elseena Jose
3	BP102T.3	Understand the basic principles of electrochemical methods of analysis of drugs.	Understand the basic principles of electrochemical methods of analysis of drugs.	Understand	Elseena Jose
4	BP102T.4	Be skilled in preparation and standardization of various concentrations of analytical solutions	Be skilled in preparation and standardization of various concentrations of analytical solutions	Apply	Elseena Jose
5	BP102T.5	Understand the concepts of errors, accuracy, precision and significant figures.	Understand the concepts of errors, accuracy, precision and significant figures.	Understand	Elseena Jose

Generated at : 06/06/2023 09:41:11





# Nirmala College of Pharmacy, Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	B Pharm
Batch	2022-2026
Semester	1
Subject	Pharmaceutical Analysis I – 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
BP102T.1	Point : 3 Justification : Attain a firm foundation in the fundamentals of analytical chemistry and application of chemical and scientific theories of analytical chemistry.	Point : 3 Justification : Helps in planning qualitative and quantitative analysis of drugs	Point : 3 Justification : understanding of scientific principles and calculations and be able to apply this knowledge to the solution of problems and performance of experiments.	Point : 1 Justification : Volumetric analysis includes basic concepts of qualitative and quantitative analysis only.	Point : 3 Justification : Sound knowledge of volumetric analysis helps in guiding the people in	Point : 3 Justification : Sound knowledge of concept of the various volumetric analysis provide a professional dignity as analyst		Point : 2 Justification : Demonstration of scientific theories of analytical Chemistry in volumetric analysis	Point : 2 Justification : Can apply knowledge to explain applications of different volumetric analysis to society.	Point : 3 Justification : The usage of chemicals and reagents effectively and the selection of proper method may help in conservation of these chemical to an extent.	Point : 3 Justification : Sound knowledge of analytical techniques in qualitative and quantitative analysis of drugs helps to identify the new techniques
BP102T.2	Point : 3 Justification : To perform common lab techniques and quantitative analysis of drugs and pharmaceuticals.	Point : 3 Justification : Able to plan the quantitative analysis by weight and common laboratory practices.	Point : 3 Justification : The basic rules of weighing, accuracy, precision etc. will helps in the calculation of normality and also to calculate the percentage of analyte in a sample.		Point : 2 Justification : Can guide peoples in industry to practice common laboratory techniques	Point : 3 Justification : Helps the students to become a skilled analyst by knowing the good laboratory practices by understanding the common laboratory techniques.	Point : 2 Justification : Honor personal values and apply ethical principles while using chemicals.	Point : 3	Point : 2 Justification : Educate the society about the hazardous nature of chemicals and its safe handling.	Point : 3 Justification : Knowledge about various analytical methods and its scopes helps to select a particular method for analysis and its helps in conservation of chemicals and reduce contamination of soil and environment by chemicals	Point : 2 Justification : Able to perform quantitative analysis of pharmaceuticals.
BP102T.3	Point : 3 Justification : Sufficient knowledge regarding	Point : 3 Justification : Able to execute systematically the electrochemical	Point : 3 Justification : Able to analyze the electrochemical results and from	Point : 3 Justification : Knowledge of electroanalytical methods helps to use sophisticated	Point : 3 Justification : Knowledge of electrochemical analytical techniques helps	Point : 2 Justification : Can work as electrochemical analyst	Point : 2 Justification : Can apply ethical principles while performing	Point : 3	Point : 2 Justification : Can apply knowledge to explain applications of	Point : 3 Justification : Knowledge about various analytical methods and its scopes helps to	Point : 3 Justification : Knowledge in basic electro-analytical methods will be

	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
	electrochemical analysis	analysis of drugs and pharmaceuticals.	that end point determination.	electroanalytical apparatus	in guiding people in pharmaceutical industries.		electrochemical analysis		electrochemical analysis to society.	select a particular method for analysis and its helps in conservation of chemicals and reduce contamination of soil and environment by chemicals	useful for further studies in advanced electrochemical methods
BP102T.4	Point : 3 Justification : Knowledge of problem solving, critical thinking and thereby analytical reasoning.	Point : 3 Justification : Planning and critical thinking in selection of analytical methods for various pharmaceutical formulations.	Point : 3 Justification : 3 quantitative analysis of pharmaceuticals sortout the problems associated with its percentage purity, ensure the quality and to estimate the analyte in various samples	Point : 3 Justification : Modern softwares can be used for the data analysis	Point : 2 Justification : Skill in problem solving, and analytical reasoning helps to act as a leader in pharmaceutical industries.	Point : 2 Justification : Able to participate in analytical research	Point : 3 Justification : critical thinking and analytical reasoning based on ethical values makes the analytical data more reliable	Point : 3	Point : 2 Justification : Thorough knowledge about the various standardization techniques can be utilized in correct performance of different analytical Procedures	Point : 3 Justification : Knowledge about various analytical methods and its scopes helps to select a particular method for analysis and its helps in conservation of chemicals and reduce contamination of soil and environment by chemicals	Point : 3 Justification : Skills in problem solving help the students to explore more on analytical techniques and its newer applications
BP102T.5	Point : 3 Justification : Understand impurity sources and how to determine the impurities in drugs and pharmaceuticals.	Point : 3 Justification : Proper planning is needed to identify the sources of impurities and may be performed by the limit test for metals.	Point : 2 Justification : 2 Basic knowledge of various analytical errors and its corrective measures is helpful for problem analysis		Point : 2 Justification : Can share the knowledge of sources of impurities in drugs and pharmaceutical preparations. Also can explain the method to identify them.	Point : 2 Justification : Sound knowledge to perform limit tests for metals to identify its permitted limits in drugs and pharmaceuticals provide a professional dignity as analyst	Point : 3 Justification : Apply ethical principles while determining the permitted limits of impurities.	Point : 3	Point : 3 Justification : Identify the permitted limit of impurities in drugs and pharmaceuticals for the safety of society.	Point : 3 Justification : Knowledge about various analytical methods and its scopes helps to select a particular method for analysis and its helps in conservation of chemicals and reduce contamination of soil and environment by chemicals	Point : 2 Justification : Sound knowledge about impurities helps to identify its presence and also whether it is within limit or not
Average Score	3	3	2.8	2.33333333333333	2.4	2.4	2.5	2.8	2.2	3	2.6





# 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	B Pharm
Batch	2022-2026
Semester	1
Subject	Pharmaceutics I – Theory

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO1	Explain history of profession of Pharmacy in India & Pharmacopeia and its development.		Understand	Manju Maria Mathews
2	CO2	Learn parts and handling of prescription, posology & dose calculation of drug in children		Understand	Manju Maria Mathews
3	CO3	Understand basic requirements, formulation and evaluation of conventional dosage forms like powder, liquid (monophasic & biphasic) and semi solid dosage forms.		Understand	Manju Maria Mathews
4	CO4	To understand about pharmaceutical incompatibility and methods to overcome		Understand	Manju Maria Mathews
5	CO5	Understand the mechanisms and factors influencing dermal penetration of drugs		Understand	Manju Maria Mathews

Generated at : 06/06/2023 09:45:06





# Nirmala College of Pharmacy, Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	B Pharm
Batch	2022-2026
Semester	1
Subject	Pharmaceutics I – 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
CO1	Point : 3 Justification : Acquire basic knowledge about profession of pharmacy				Point : 2 Justification : Understanding history of profession of Pharmacy in India & Pharmacopeia and its development is helpful the need to be responsible citizens to improve health and well being of society	Point : 2 Justification : Understands the evolving of profession of pharmacy from ancient times	Point : 2 Justification : Pharmacy profession has been evolved by applying ethical principles		Point : 3 Justification : Knowing history of the profession and about pharmacopoeia one can assume his responsibility as pharmacist		Point : 2 Justification : Understands the importance of pharmacopoeia in pharmacy profession.
CO2	Point : 3 Justification : Knowing parts of prescription and ways to handle, dose calculations contribute to pharmacy knowledge		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	Point : 3 Justification : Understands the role of pharmacist as health promoters		Point : 2 Justification : Understand 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.
CO3	Point : 3 Justification :	Point : 2 Justification :	Point : 2 Justification :		Point : 2 Justification :	Point : 2 Justification :			Point : 3 Justification :		Point : 2 Justification :

	<b>PO1: Pharmacy Knowledge</b>	<b>PO2: Planning Abilities</b>	<b>PO3: Problem Analysis</b>	<b>PO4: Modern tool usage</b>	<b>PO5: Leadership Skills</b>	<b>PO6: Professional Identity</b>	<b>PO7 Pharmaceutical ethics</b>	<b>PO8: Communication</b>	<b>PO9: The Pharmacist and society</b>	<b>PO10: Environment and sustainability</b>	<b>PO11: Life Long learning</b>
	Conventional dosage forms are the most commonly used formulations by patients. Formulation aspects contribute to basic pharmacy knowledge	Understanding basic requirements for formulation and evaluation of conventional dosage forms, proper planning for selection ingredients and methods of preparation is obtained	Utilize the principles in designing dosage forms		Understanding basic requirements for formulation and evaluation of conventional dosage forms, makes one to select best excipients and methods of preparation	Knowledge about dosage forms makes one able to meet professional needs in formulation development			Enables one to acquire knowledge as formulator in pharmacy profession		For formulating dosage forms, one must have a thorough knowledge about advancements in pharmaceutical technologies and this encourages the pharmacist to upgrade himself.
CO4	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 knowledge to correct the same,		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 responsible pharmacist		Point : 2 Justification : For understanding incompatibilities in prescription, one must have a thorough knowledge about drugs and this encourages the pharmacist to upgrade himself.
CO5	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 : 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.

	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
Average Score	3	2.5	2		2	2.2	2	2	3		2

Generated at : 06/06/2023 12:27:46





# 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	B Pharm
Batch	2022-2026
Semester	1
Subject	Pharmaceutical Inorganic Chemistry – Theory

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO.2	To understand the medicinal and pharmaceutical importance of inorganic compounds		Understand	Namitha T H
2	CO.3	To understand the principles and procedures of analysis of drugs		Analyze	Namitha T H
3	CO.4	To study regarding the application of inorganic pharmaceuticals and appreciate the importance of inorganic pharmaceuticals in preventing and curing the disease		Apply	Namitha T H
4	CO.5	To understand the basic concepts of buffers and isotonic solutions.		Understand	Namitha T H
5	CO.1	To know the sources of impurities and methods to determine the impurities in inorganic drugs and pharmaceuticals		Remember	Namitha T H

Generated at : 06/06/2023 09:50:19





# Nirmala College of Pharmacy, Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	B Pharm
Batch	2022-2026
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
CO.2	Point : 3 Justification : A deep awareness about the medicinal importance of pharmaceutical.	Point : 2 Justification : Time management during limit test, preparation and assay while conducting experiments.	Point : 2 Justification : Identification of compounds by various analytical procedures like limit test, assay and preparation helps in the preparation of standard drugs.		Point : 2 Justification : Can motivate the society about the medicinal importance of drugs in day today life	Point : 1 Justification : Evaluate the significance of inorganic compounds.		Point : 1 Justification : Can write effective reports and documentation.	Point : 2 Justification : To disseminate the knowledge of inorganic drugs to the common public.	Point : 2 Justification : Sound knowledge about the radioactive substances to prevent the usage of toxic effect to the environment	Point : 2 Justification : A firm grip over medicinal importance of pharmaceuticals helps the students in their further learning process.
CO.3	Point : 3 Justification : Acquire knowledge About the principles and procedures for analyzing drugs	Point : 2 Justification : Proper planning is required to make the drug also its evaluation in different stages requires delegation skill.	Point : 2 Justification : Evaluation of percentage purity shows the quality of a compound.	Point : 2 Justification : Can select appropriate procedure for preparation of inorganic drugs.	Point : 3 Justification : Helps in guiding people for evaluating quality of drugs for improving the health and well being.	Point : 2 Justification : Understand and communicate the chemical reactions in preparation of drugs,		Point : 2 Justification : Can write effective reports and documentation.	Point : 2 Justification : Can develop quality procedure about the procedure helps in decreasing the wastage of chemicals that are harmful to the environment.	Point : 2 Justification : Proper knowledge about the procedure helps in decreasing the wastage of chemicals that are harmful to the environment.	Point : 2 Justification : With basic knowledge about the principle and procedure can involve in the development of new formulations, cosmetics etc.
CO.4	Point : 2 Justification : Strong hold about the applications of inorganic	Point : 2 Justification : proper planning is required for preventing	Point : 2 Justification : Can analyse the preventing and curing measures of the		Point : 1 Justification : Can motivate people by sharing the		Point : 2 Justification : Proper ethics should followed while	Point : 1 Justification : Being able to comprehend the role of medicinal importance in curing disease.		Point : 3 Justification : Can explain the various applications of inorganics in different medical	Point : 3 Justification : Updating the medicinal applications of inorganic compound.



	<b>PO1: Pharmacy Knowledge</b>	<b>PO2: Planning Abilities</b>	<b>PO3: Problem Analysis</b>	<b>PO4: Modern tool usage</b>	<b>PO5: Leadership Skills</b>	<b>PO6: Professional Identity</b>	<b>PO7: Pharmaceutical ethics</b>	<b>PO8: Communication</b>	<b>PO9: The Pharmacist and society</b>	<b>PO10: Environment and sustainability</b>	<b>PO11: Life Long learning</b>
	compounds in curing disease	and curing the disease by inorganic compounds	disease by inorganic pharmaceuticals		need for conservation of medicinal inorganic compounds and by explaining their role in national economy.		prescribing inorganic drugs.			fields which helps in curing and preventing the disease..	
CO.5	Point : 2 Justification : The fundamentals of buffers are acquired.	Point : 2 Justification : During making isotonic solutions planning is required to avoid errors ,contamination in all stages of experiments.	Point : 2 Justification : Can analyse the advantage of buffers in pharmaceutical fields.		Point : 1 Justification : Able to explain the different method of calculation of isotonicity of solutions ,advantages and various application in pharmacy.			Point : 2 Justification : Give clear instruction for finding isotonic value of inorganics..	Point : 1 Justification : Awareness of properties and uses of buffers helps the society to produce uniform and quality products.	Point : 2 Justification : Following safety measures while performing risky experiments contributes to overall protection of ecosystem.	Point : 1 Justification : By applying the basic concepts of buffers and isotonic solutions can do research for the development of new molecules.
CO.1	Point : 3 Justification : Possess knowledge About the sources and methods for determination of impurities.	Point : 2 Justification : Awareness of impurities in inorganic compounds requires planning like methods of determination ,and selection of reagents, ,time management (within a particular time readings must be taken)	Point : 2 Justification : Impurity analysis is the purity conformation of a compound	Point : 1 Justification : Knowledge about Modern techniques (limit tests apparatus) for evaluating quality of compounds	Point : 2 Justification : Can share the knowledge about impurities in inorganic drugs.	Point : 2 Justification : Can explain the chemistry ,sources of impurities in medicinal drugs.		Point : 1 Justification : Can communicate effectively about the sources of impurities in inorganic compounds.	Point : 1 Justification : Can apply knowledge to explain the impurities present in the drugs to the parties.	Point : 2 Justification : Knowledge about the sources of impurities and methods to determine helps in the development of new molecules or drugs	Point : 2 Justification : Students are able to identify the impurities in pharmaceutical drugs.
Average Score	2.6	2	2	1.5	1.8	1.6666666666667	2	1.4	1.5	2.2	2



# 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	B Pharm
Batch	2022-2026
Semester	1
Subject	Communication skills – Theory * 2

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	c01	Upon completion of the course the student will be able to communicate fearlessly. they can identify the stage of communication while they communicate, so they become effective communicators. Understand the communication barriers and they identify their communication barriers. and they easily overcome those barriers. Change their narrow thinking and start broad thinking. Enlarging their communication capacity. use good body and sound techniques of communication. They easily assume the communication styles of different people they communicate with. They are able to use the most effective communication styles in different situations.		Apply	Athira James
2	CO2	Upon completion of the course the student will be able to identify the importance of listening in communication, and become good listeners in the communication process. Improve their general writing capacity and also improve their literary writing capacity. handle different styles of writing.		Analyze	Athira James
3	CO3	Upon completion of the course the student will be able to attend an interview effectively without any fear. And make sure that they can produce their best during an interview. They can improve their confidence with enough practice.		Apply	Athira James
4	CO4	Upon completion of the course the student will be able to Improve their presentation skills.		Create	Athira James
5	CO5	Upon completion of the course the students will be able to 1. Do more about Group discussions. Through practice they can develop their communication skills and also general awareness. And help to overcome their stage fear.		Apply	Athira James

Generated at : 06/06/2023 09:56:01





# Nirmala College of Pharmacy, Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	B Pharm
Batch	2022-2026
Semester	1
Subject	Communication skills – Theory * 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
c01		Point : 1 Justification : able to plan their talks and writings	Point : 1 Justification : identify their own communication barriers	Point : 1 Justification : get familiar with electronic media communication	Point : 3 Justification : overcome their fear and become excellent leaders			Point : 3 Justification : improve their better communication capacity		Point : 2 Justification : able to understand their surroundings	Point : 2 Justification : very necessary to build a career
CO2			Point : 1 Justification : identify their drawbacks		Point : 2 Justification : know how to become a good leader			Point : 3 Justification : improve their communication and listening skills		Point : 3 Justification : start respect their surroundings	Point : 3 Justification : necessary to improve their listening and communication skills
CO3		Point : 3 Justification : able to pre plan an interview	Point : 2 Justification : identify their own communication errors		Point : 2 Justification : they can become worth employees			Point : 3 Justification : become smart to attend interviews			Point : 3 Justification : useful in their career growth
CO4		Point : 4 Justification : able to give smart presentations		Point : 2 Justification : learn to use modern presentation equipments	Point : 3 Justification : normally improve their			Point : 3 Justification : improve communication skills			Point : 3 Justification : become smart presenters

	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
					leadership skills						
CO5		Point : 3 Justification : improve their planning skills	Point : 3 Justification : they think more about a topic and find solutions for problems	Point : 2 Justification : get infested to handle modern communication tools to express their ideas	Point : 3 Justification : make them good leaders			Point : 3 Justification : improve communication capacity		Point : 2 Justification : learn to respect the surroundings	Point : 3 Justification : help to be authentic in society
Average Score		2.75	1.75	1.666666666667	2.6			3		2.333333333333	2.8

Generated at : 06/06/2023 12:29:54





# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute			Nirmala College of Pharmacy,Muvattupuzha								
Course			B Pharm								
Batch			2022-2026								
Semester			1								
Subject			Human Anatomy and Physiology – Practical								
	PO1: Pharmacy Knowledge	PO1	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:Environ and sustaina
BP107P.1	Point : 3 Justification : A sound basic knowledge is required to study the anatomical features of tissue		Point : 1 Justification : Proper planning is essential before studying and preparing for the experiments.	Point : 1 Justification : Problem solving skills are inevitable while tracing the anatomical features of tissue.	Point : 1 Justification : Handling modern tools while doing experiment	Point : 1 Justification : Initiative skills while facing obstacle in studying tissues.	Point : 3 Justification : Ability to convey the anatomical specialties of a tissue to a common public.	Point : 1 Justification : To reject any kind of proposals from medical field that may harm the maintenance and structuring of the tissue.	Point : 1 Justification : To write effective documents and report on problems related to tissue.	Point : 1 Justification : Apply the knowledge on tissue to give awareness to society when any health issue arises.	Point : 1 Justification : Understand and avoid the harmful medicines that could harm the basic structure function of a tis
BP107P.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 when recording blood pressure and body temperature.	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 give suggestions to the society on how to deal with sudden variation in blood pressure and society	Point : 2 Justification : Knowing and preventing harmful deeds that could harm nature and turn affects the own body temperature and components.
BP107P.3	Point : 3 Justification : Practical knowledge on the constituent particles of blood cells and the associate 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 need for pollut free society to the growth of diseases
BP107P.4	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
BP107P.5	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 facts to the society
Average Score	3		1.6	1.8	1.8	1	2	1.6	2	1	1.8



# 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	B Pharm
Batch	2022-2026
Semester	1
Subject	Human Anatomy and Physiology – Practical

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	BP107P.1	Understand the normal anatomical peculiarities of tissues.	Microscopic study of epithelial and connective tissue Microscopic study of muscular and nervous tissue	Understand	Maneesha Peter
2	BP107P.2	Record the normal physiologic constants like blood pressure, body temperature etc for analyzing the homeostatic state of body	Determination of heart rate and pulse rate, Recording of blood pressure	Analyze	Maneesha Peter
3	BP107P.3	Analyze and interpret the pathological states associated with blood cells	Enumeration of white Blood cell(WBC) count, Enumeration of total Red Blood corpuscles(RBC) count	Analyze	Maneesha Peter
4	BP107P.4	Correlate the anatomical features of bones in normal and bone anomalies	Identification of axial bones, Identification of appendicular bones	Apply	Maneesha Peter
5	BP107P.5	Correlate basic physiology with the pathophysiological outcomes that may be encountered in the clinical setting	Determination of bleeding time, Determination of clotting time, Estimation of hemoglobin content, Determination of blood group, Determination of Erythrocyte Sedimentation Rate(ESR),	Apply	Maneesha Peter

Generated at : 27/06/2023 22:09:46







# 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	B Pharm
Batch	2022-2026
Semester	1
Subject	Pharmaceutical Analysis I – Practical

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	BP108P.1	Perform electroanalytical methods to determine the normality of drugs and pharmaceuticals.	Perform electroanalytical methods to determine the normality of drugs and pharmaceuticals.	Apply	Elseena Jose
2	BP108P.2	Perform the quantitative analysis of samples and standardize various chemical solutions by various volumetric methods	Perform the quantitative analysis of samples and standardize various chemical solutions by various volumetric methods	Apply	Elseena Jose
3	BP108P.3	Perform various operations in the laboratory like weighing, transferring, titrations, preparation of solutions, recording and interpretation of analytical results.	Perform various operations in the laboratory like weighing, transferring, titrations, preparation of solutions, recording and interpretation of analytical results.	Apply	Elseena Jose
4	BP108P.4	Clearly communicate the results of scientific work in oral, written and in electronic formats.	Clearly communicate the results of scientific work in oral, written and in electronic formats.	Analyze	Elseena Jose
5	BP108P.5	Perform limit tests to determine the impurities in drugs and pharmaceuticals.	Perform limit tests to determine the impurities in drugs and pharmaceuticals.	Apply	Elseena Jose

Generated at : 27/06/2023 22:12:04



# Nirmala College of Pharmacy, Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute		Nirmala College of Pharmacy,Muvattupuzha									
Course		B Pharm									
Batch		2022-2026									
Semester		1									
Subject		Pharmaceutical Analysis I – Practical									
	PO1: Pharmacy Knowledge	PO1	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	PO1 and
BP108P.1	Point : 3 Justification : Sufficient knowledge of electrochemical analysis.		Point : 3 Justification : Helps in planning qualitative and quantitative analysis of drugs using electrochemical methods	Point : 3 Justification : Able to analyse the electeochemical results and from that end point determination.	Point : 3 Justification : Will be able to learn and use various analytical instruments	Point : 2 Justification : Knowledge of electrochemical analytical techniques helps in guiding people in pharmaceutical industries.	Point : 2 Justification : Knowledge of Analytical instruments can be used in research activities which create a professional identity	Point : 2 Justification : Can apply ethical principles while performing electrochemical analysis	Point : 2 Justification : Preparation of records of analytical method.	Point : 3 Justification : knowledge to explain applications of ecyrochemical analysis to society	Poin Justi sele meth use help of th
BP108P.2	Point : 3 Justification : Acquire knowledge about quantitative analysis of samples and standardize various chemical solutions by various volumetric methods		Point : 3 Justification : Will be able to plan the various analytical technique for the qualitative analysis of samples and standardize various chemical solutions by various volumetric methods.	Point : 3 Justification : Perform the quantitative analysis of samples and standardize various chemical solutions make the students to estimate various compounds	Point : 2 Justification : The standardization can be performed using modern equipments	Point : 2 Justification : Helps the students to become a skilled analyst by knowing the good laboratory practices by understanding the common laboratory techniques.	Point : 3 Justification : Helps the students to become a skilled analyst by knowing the good laboratory practices by understanding the common laboratory techniques	Point : 3 Justification : Knowledge of common laboratory techniques and good laboratory practices based on ethical principles	Point : 3 Justification : Can communicate assay technique and its modifications if required with suitable explanations	Point : 2 Justification : Can apply knowledge to explain applications of ecyrochemical analysis to society.-	
BP108P.3	Point : 3 Justification : Able to perform operations in the laboratory such as weighing, transferring, titrations, recording and interpretation of analytical results.		Point : 3 Justification : Designing and planning of various operations such as weighing, transferring, titrations, recording and interpretation of analytical results mould the students.	Point : 3 Justification : Able to identify the problems associated with various operations in the laboratory like weighing, transferring, titrations, recording and interpretation of analytical results	Point : 2 Justification : Weighing of analyte and sampling of analytes may require the advanced instrumentation in addition to glassware		Point : 3 Justification : Enhance the student's skill in weighing, transferring, titrations, recording and interpretation of analytical results.	Point : 2 Justification : critical thinking and analytical reasoning based on ethical values makes the analytical data more reliable	Point : 3 Justification : Will be able to communicate the sampling technique		
BP108P.4	Point : 3 Justification : Able to communicate the results of scientific work in oral, written and electronic formats.		Point : 3 Justification : Communication of the analytical results in oral, written and electronic formats require proper planning of the same	Point : 3 Justification : Able to analyse the drugs and pharmaceuticals and interpret the analytical data associated with the same	Point : 3 Justification : The data interpretation demands the software for easy and accurate calculation	Point : 2 Justification : Communication of results in oral, written and electronic formats demands improved leadership skill	Point : 3 Justification : Communication ability of a students in data interpretation will ensure the professional dignity	Point : 3 Justification : Enable to explore new areas of research, especially in applying knowledge in applied chemistry	Point : 3 Justification : Can communicate effectively about the analytical data in effective way	Point : 3 Justification : Commitment of students as pharmacist towards the society will get enhanced by the correct interpretation and communication of the same.	
BP108P.5	Point : 3 Justification : Would get proper knowledge regarding the analysis of impurities present in drugs		Point : 3 Justification : Time management during limit tests test during analysis	Point : 2 Justification : Identification of impurities and errors by various analytical procedures helps in controlling the purity of pharmaceuticals	Point : 2 Justification : Modern tools like turbidimeters can be effectively used.	Point : 3 Justification : Can motivate the society to identify and avoid the occurrence of impurities present in pharmaceutical inorganic drugs.	Point : 2 Justification : Evaluate the presence of impurities in a given sample of preparation	Point : 3 Justification : Can honor personal variations in values and apply ethics towards society	Point : 3 Justification : Can write effective reports and documentation and can communicate the results	Point : 3 Justification : Can identify the irrelevant or harmful substance in the inorganic for the safety of the society	Poin Justi know the i to pr usag subs
Average Score	3		3	2.8	2.4	2.25	2.6	2.6	2.8	2.75	2.5



# 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	B Pharm
Batch	2022-2026
Semester	1
Subject	Pharmaceutics I – Practical

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

Generated at : 27/06/2023 22:12:58





# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha										
Course	B Pharm										
Batch	2022-2026										
Semester	1										
Subject	Pharmaceutics I – Practical										
	PO1: Pharmacy Knowledge	PO1	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
CO1	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	
CO2	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 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	
CO3	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 or environment is minimized
CO4	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
Average Score	3		2.75	2.25		2.75	2.25	2	2.33333333333333	2.5	3

Generated at : 27/06/2023 22:13:17





# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha										
Course	B Pharm										
Batch	2022-2026										
Semester	1										
Subject	Pharmaceutical Inorganic Chemistry – Practical										
	PO1: Pharmacy Knowledge	PO1	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 and s
CO 1	Point : 3 Justification : Possess knowledge about the preparation of inorganic drugs		Point : 2 Justification : Proper planning like choice of reagents, time management (product formation within a particular time)	Point : 3 Justification : Making pharmaceutical inorganic drugs	Point : 3 Justification : Keen handling of Titration techniques for evaluating the chemical nature of the constituents in the preparation.	Point : 1 Justification : Can share the knowledge about making of inorganic drugs	Point : 3 Justification : Can explain the chemistry, preparation and uses of inorganic drugs	Point : 2 Justification : Ethical judgment in giving the type of inorganic drug for a disease	Point : 3 Justification : Can communicate effectively about the preparation of drugs	Point : 2 Justification : Can apply knowledge to explain the uses of drug to the patients.	Point Justifi Know chemi inorga helps de molec
CO2	Point : 1 Justification : Regarding analysis of impurities present in drugs		Point : 3 Justification : Time management during limit tests during analysis	Point : 2 Justification : Identification of impurities and errors by various analytical procedures help in the preparation of pure drugs	Point : 2 Justification : Modern tools like limit test apparatus can be effectively used.	Point : 3 Justification : Can motivate the society to identify and avoid the occurrence of impurities present in pharmaceutical inorganic drugs.	Point : 2 Justification : Evaluate the presence of impurities in a given sample of preparation	Point : 2 Justification : Can honor personal variations in values and apply ethics towards society	Point : 1 Justification : Can write effective reports and documentation.	Point : 2 Justification : Can identify the irrelevant or harmful substance in the inorganic for the safety of the society	Point Justifi knowl the im to pre usage subst
CO3	Point : 3 Justification : Acquire knowledge For estimating the amount of an element in a given sample		Point : 2 Justification : Proper planning is required to make the necessary arrangements for limit tests.	Point : 3 Justification : Evaluation of the nature of the given pharmaceutical preparation	Point : 3 Justification : Can select appropriate procedure for preparation of compounds.	Point : 1 Justification : Helps in guiding people for identifying the impurities in compounds by using limit tests	Point : 3 Justification : Understand, analyze and impart the knowledge obtained from the various methods and techniques employed in the preparation of a given compound.	Point : 1 Justification : Can apply ethical principles while making drugs	Point : 3 Justification : Can impart and share effective reports and documentation.	Point : 1 Justification : Can develop quality of drug for maintaining the health of the society.	Point Justifi Strong differe limit te preve unnec introd impur sampl
CO4	Point : 2 Justification : Awareness about the presence of a given element in a compound.		Point : 3 Justification : Proper understanding of the key methods is essential for various tests for purity	Point : 1 Justification : Can estimate the presence of an element in a given sample of inorganic preparation	Point : 1 Justification : Ability to get accurate method to conduct the limit tests.	Point : 3 Justification : Can motivate people by sharing the need for conservation of medicinal plants and by explaining their role in national economy.	Point : 1 Justification : Can explain the need for identifying the impurities present in the, compounds their trade medicinal importance that contribute to national economy.	Point : 2 Justification : Ethics must be there while applying the principles of limit tests.	Point : 1 Justification : Being able to comprehend the role of identifying the impurities in a given sample of pharmaceutical preparation	Point : 2 Justification : By knowing the methods that can limit the errors in drugs preparation.	Point Justifi explai people of dru for pre which in pre ecosity
CO5	Point : 1 Justification : Knowledge about determination of properties of pharmaceutical inorganic compounds.		Point : 1 Justification : While determining the amount of an element in a given sample, proper planning is required to avoid errors and reach the accurate value.	Point : 1 Justification : Can analyze the basic principles involved in the limit tests of various compounds.	Point : 2 Justification : Knowledge about standard apparatus (Nessler's cylinder, Titration apparatus, etc.)	Point : 2 Justification : Able to explain the hazards presented due to the presence of impurities in a given pharmaceutical preparation and methods to avoid it using the principles and procedures of limit tests	Point : 3 Justification : Can find the chemical nature of various elements in a given preparation and to impart the knowledge obtained.	Point : 2 Justification : Can consider ethical principles while determining the chemical nature of a given pharmaceutical preparation.	Point : 2 Justification : Give clear instruction while determining the activity of an active ingredient in a pharmaceutical compound.	Point : 2 Justification : Various tests for purity help the society to produce uniform and quality products.	Point Justifi Know chemi help ir and p the bi the er
Average Score	2		2.2	2	2.2	2	2.4	1.8	2	1.8	2.4



# 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	B Pharm
Batch	2022-2026
Semester	1
Subject	Pharmaceutical Inorganic Chemistry – Practical

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO 1	Know the source of impurities and determine impurities in inorganic compounds.		Evaluate	Namitha T H
2	CO2	know the identification test of few inorganic compounds		Understand	Namitha T H
3	CO3	To test the purity of some inorganic compounds.		Evaluate	Namitha T H
4	CO5	To know preparation of inorganic pharmaceuticals.		Create	Namitha T H

Generated at : 27/06/2023 22:13:55







# 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	B Pharm
Batch	2022-2026
Semester	1
Subject	Communication skills – Practical*

Sl.No	CO Code	Corse Outcome	Description	Bloom Level	Created_by
1	c01	improve basic communication skills		Apply	Athira James
2	CO2	improve pronunciation of English language		Apply	Athira James
3	CO3	learn etiquettes of different communication process		Apply	Athira James

Generated at : 27/06/2023 22:19:21





# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888



## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha
Course	B Pharm
Batch	2022-2026
Semester	1
Subject	Communication skills – Practical*

	PO1: Pharmacy Knowledge	PO1	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:Environm and sustainabil
c01			Point : 3 Justification : aware about the proper communication		Point : 1 Justification : get familiar with modern communication tools	Point : 3 Justification : improve leadership skills	Point : 1		Point : 3 Justification : improve communication skills		
CO2					Point : 2 Justification : get familiar with language tools				Point : 3 Justification : improve pronunciation skills		
CO3			Point : 1 Justification : improve thinkin g abilities	Point : 1 Justification : able to analyze problems and its solutions	Point : 2 Justification : get familiar with modern language tools	Point : 3 Justification : become good leaders			Point : 3 Justification : learn polite communications		
Average Score			2	1	1.6666666666667	3	1		3		

Generated at : 27/06/2023 22:19:50



### **2.6.1:**

## **Course Outcomes (COs)**

**Program: B Pharm**

**Batch: 2<sup>nd</sup> semester**





# 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	B Pharm
Batch	2021-2025
Semester	2
Subject	Human Anatomy and Physiology II – Theory

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	co1	test	Explain the anatomy and physiology of Human Anatomy & Physiology and disorders of digestive system	Understand	Emily James
2	CO2	test	Understand the anatomy and homeostatic mechanisms and altered physiology of nervous system.	Understand	Emily James
3	CO3	test	Understand the homeostatic mechanisms and altered physiology of respiratory and urinary system	Understand	Emily James
4	CO4	test	Understand the homeostatic mechanisms and altered physiology of endocrine system.	Understand	Emily James
5	CO5	test	Students would have studied in detail about the male and female reproductive systems.	Understand	Emily James

Generated at : 06/06/2023 10:09:41





# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha
Course	B Pharm
Batch	2021-2025
Semester	2
Subject	Human Anatomy and Physiology II – 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
co1	Point : 3 Justification : A deep knowledge on Explain the gross morphology, structure and functions of various organs of the human body	Point : 1 Justification : Proper planning is needed to have an in depth study of human anatomy	Point : 2 Justification : Ability to recognize the abnormalities in the structure and functioning of human body.	Point : 2 Justification : To handle modern tools to recognize diseases	Point : 1 Justification : Imparting awareness and properly explaining the altered physiology to others	Point : 1 Justification : As a healthcare professional help the patients to know their body physiology	Point : 1	Point : 1 Justification : Understand and provide awareness regarding health issues	Point : 2 Justification : Propagate keen awareness to the society especially during the threat of communicable diseases.		Point : 1
CO2	Point : 3 Justification : A deep knowledge on anatomy of brain, spinal cord , feedback mechanism and its effect.,neurotransmitters etc	Point : 1 Justification : Plan and learn coordinated working pattern of different organs of each system	Point : 2 Justification : To correlate the disease with body physiology and feedback mechanism.	Point : 2 Justification : Using modern tools like animations etc, able to understand	Point : 1 Justification : Ability to handle an urgent case, providing first-aids etc.	Point : 2 Justification : Providing awareness to common public regarding basic health issues.		Point : 1 Justification : To write reports and documents on health issues and diseases.	Point : 2 Justification : Provide knowledge, precautionary measures and proper guidelines on genetic diseases	Point : 1 Justification : Awareness regarding proper environment for personal health	
CO3	Point : 3 Justification : A sound knowledge in the anatomy as well as coordinated working pattern of different organs of each system			Point : 2 Justification : Use the modern diagnostic techniques or instruments	Point : 1 Justification : Imparting awareness and properly explaining the altered			Point : 1 Justification : The anatomical structures/organization can be properly communicated.	Point : 2 Justification : Proper Reasoning and intellectual capacity in health care		

	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
				to demonstrate and understand the physiology.	physiology to others				facilitates to contribute significantly to the needy people in the society.		
CO4	Point : 3 Justification : A sound knowledge in the coordinated working pattern of different organs of each system		Point : 2 Justification : Analyze the alterations that commonly occurs in the physiology by closely observing the normal body functioning	Point : 2 Justification : To handle modern tools to recognize diseases.	Point : 1 Justification : Ability to handle an urgent case, providing first-aids etc.			Point : 1 Justification : Understand and provide awareness regarding underlying causes of various diseases	Point : 2 Justification : Propagate keen awareness to the society especially during the threat of various diseases.		
CO5	Point : 3 Justification : An overall idea of knowledge on male and female reproductive systems. effect	Point : 1 Justification : Proper planning is needed to have an in depth study of human anatomy		Point : 2 Justification : Using certain physiology simulated softwares, demo kits.	Point : 1 Justification : Imparting awareness and properly explaining the altered physiology to others			Point : 1 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		
Average Score	3	1	2	2	1	1.5	1	1	2	1	1

Generated at : 06/06/2023 12:34:54





# Nirmala College of Pharmacy, Muvattupuzha

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

Email : [info@nirmalacp.org](mailto:info@nirmalacp.org), Phone : 04852836888

## Course Outcome

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	B Pharm
Batch	2021-2025
Semester	2
Subject	Pharmaceutical Organic Chemistry I – Theory

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	BP202T.1	Understand fundamental principles of organic chemistry.	Understand fundamental principles of organic chemistry.	Analyze	Anu Jayamol Mathew
2	BP202T.2	Understand the nomenclature of alkanes, alkenes, alkynes, alkyl halides, aromatic compounds, carbonyl compounds, Alcohols, ethers, phenols, amines, acids and their various derivatives using systematic (IUPAC) nomenclature	Understand the nomenclature of alkanes, alkenes, alkynes, alkyl halides, aromatic compounds, carbonyl compounds, Alcohols, ethers, phenols, amines, acids and their various derivatives using systematic (IUPAC) nomenclature	Create	Anu Jayamol Mathew
3	BP202T.3	Depict and explain detailed chemical mechanisms for various chemical reactions.	Depict and explain detailed chemical mechanisms for various chemical reactions.	Evaluate	Anu Jayamol Mathew
4	BP202T.4	Predict the physical properties of organic chemicals based on their structures and their hazardous nature.	Predict the physical properties of organic chemicals based on their structures and their hazardous nature.	Evaluate	Anu Jayamol Mathew
5	BP202T.5	Understand the synthesis of various organic compounds which may be intermediates of drugs	Understand the synthesis of various organic compounds which may be intermediates of drugs	Apply	Anu Jayamol Mathew

Generated at : 06/06/2023 10:12:19



# Nirmala College of Pharmacy, Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888



## CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	B Pharm
Batch	2021-2025
Semester	2
Subject	Pharmaceutical Organic Chemistry I – 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
BP202T.1	Point : 3 Justification : Students would attain a firm foundation in the fundamentals and application of chemical and scientific theories.	Point : 1 Justification : Predict the outcome of several common organic reaction types through a basic understanding of starting materials, functional groups, mechanism, and typical reaction conditions	Point : 2 Justification : understanding of scientific principles and concepts and be able to apply this knowledge to the solution of problems and performance of experiments.	Point : 2 Justification : Able to use computers for searching scientific data.	Point : 1 Justification : Can utilize the basic knowledge about molecules to prepare new medicines to facilitate the improvement in health and well being.	Point : 1 Justification : Those who completed graduation can teach the diploma students in future.	Point : 1 Justification : become familiar with the Safety Ethic	Point : 3 Justification : Communicate effectively through written and oral reports.	Point : 1 Justification : a basic understanding of organic chemistry principles to effectively solve problems encountered in everyday life and in science.	Point : 3 Justification : Demonstrate a basic understanding of how organic chemistry impacts the natural and technological environments.	Point : 3 Justification : The students should be able to apply their knowledge of the fundamental concepts and principles in organic chemistry to pharmaceuticals and then relate these concepts to drug synthesis, manufacturing and quality assurance in the practice of pharmacy.
BP202T.2	Point : 3 Justification : The student will correctly write molecular formulas from names of compounds and IUPAC names from	Point : 1 Justification : Name any chemical compounds	Point : 2 Justification : Apply the basic rules of organic nomenclature to convert between structures and names and molecular weight determination.	Point : 2 Justification : Students can utilize computational resources for naming and studying organic molecules.				Point : 2 Justification : Communicate effectively through written and oral reports.	Point : 1 Justification : They get the idea of basic nucleus present in the organic compounds.	Point : 1 Justification : Needed for sustainability of environment	Point : 3 Justification : Nomenclature helps to identify the basic nucleus of active pharmaceutical ingredient.



	<b>PO1: Pharmacy Knowledge</b>	<b>PO2: Planning Abilities</b>	<b>PO3: Problem Analysis</b>	<b>PO4: Modern tool usage</b>	<b>PO5: Leadership Skills</b>	<b>PO6: Professional Identity</b>	<b>PO7: Pharmaceutical ethics</b>	<b>PO8: Communication</b>	<b>PO9: The Pharmacist and society</b>	<b>PO10: Environment and sustainability</b>	<b>PO11: Life Long learning</b>
	molecular formula and can learn about common names for some key chemicals.										
BP202T.3	Point : 3 Justification : learn about how the different classes of organic molecules react to various reagents.	Point : 1 Justification : Predict the outcome of several common organic reaction types through a basic understanding of starting materials, functional groups, mechanism, and typical reaction conditions.	Point : 2 Justification : Development of a scientific curiosity (thinking about how and why things happen in the way that they do)	Point : 2 Justification : Students can utilize computational resources for searching the reaction mechanism and effective learning through video presentations and lectures available through online.				Point : 1 Justification : Communicate the mechanism underlying chemical reactions through written and oral reports.	Point : 2 Justification : Knowledge in chemical mechanism helps to design new reactions and chemical compound synthesis.	Point : 1 Justification : Needed for sustainability of environment	Point : 3 Justification : Knowledge in basic reaction mechanism
BP202T.4	Point : 3 Justification : recognize the classes of organic molecules, its properties and know the biological effects of and permissible exposures to certain chemicals	Point : 1 Justification : Predict the physical properties of organic chemicals based on their structures (e.g. relative boiling point, melting point, and solubility.)	Point : 2 Justification : Identify, classify, organize, analyze, and draw structures of organic molecules.	Point : 2 Justification : Web resources provide detailed physical and chemical properties and safe handling of chemicals.		Point : 2 Justification : Explain the hazardous nature of chemicals and its safe handling and use for the well being society.		Point : 3 Justification : Communicate effectively, verbally and written, for the purposes of conveying chemical information to both professional scientists and to the public.	Point : 2 Justification : Educate the society about the hazardous nature of chemicals and its safe handling.	Point : 2 Justification : Needed for sustainability of environment.	Point : 3 Justification : Organic chemistry is involved in everyday life.
BP202T.5	Point : 3 Justification : Employ the reactions learned in designing multistep organic synthesis.	Point : 1 Justification : Plan to carry out synthesis, purification and identification of organic compounds.	Point : 2 Justification : proficiency in organic chemical laboratory techniques, proficiency in organic chemical laboratory techniques.	Point : 2 Justification : Students can utilize computational resources for searching the scientific literature and effective learning.		Point : 3 Justification : Small scale synthesis of organic compound provide basic idea for the large scale synthesis of drugs which may be a new drug	Point : 1 Justification : Honour personal values and apply ethical principles while using chemicals.	Point : 3 Justification : Communicate effectively, verbally and written, for the purposes of conveying chemical information to both professional scientists and to the public.	Point : 3 Justification : Basic idea of drug synthesis motivate them to design new drugs in future for the betterment of society.	Point : 2 Justification : Needed for sustainability of environment.	Point : 3 Justification : Able to plan and evaluate the synthesis of complex drug and drug-like molecules in future.

	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
						candidate for the future.					
Average Score	3	1	2	2	1	2	1	2,4	1,8	1,8	3

Generated at : 06/06/2023 12:36:07





# 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	B Pharm
Batch	2021-2025
Semester	2
Subject	Biochemistry – Theory

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO1	Outline the structure, function and interrelationship of various biomolecules and the consequences of deviation from the normal	The application of the various biomolecules and its function in correlation with body parts	Remember	Greeshma G Nair
2	CO2	To know about bioenergetics and biological oxidation in the cell	Energy rich compounds and their functions	Understand	Greeshma G Nair
3	CO3	To understand catalytic role, therapeutic and diagnostic applications of enzymes and isoenzymes	Application of enzymes and isoenzymes by catalytically therapeutically and diagnostically	Apply	Greeshma G Nair
4	CO4	To know about the various biomolecules that affect the metabolism and the pathways of several diseases	To understand the different metabolic pathways and their deficiency diseases	Understand	Greeshma G Nair
5	CO5	To understand the mammalian genome, protein synthesis, replication mutation, and repair mechanism etc.	Study of human genome and their application	Apply	Greeshma G Nair

Generated at : 06/06/2023 10:13:56





# Nirmala College of Pharmacy, Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	B Pharm
Batch	2021-2025
Semester	2
Subject	Biochemistry – 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
CO1	Point : 3 Justification : Possess knowledge About the structure of bio molecules to study mechanism of drug action	Point : 1 Justification : To plan and identify the right cells for In-vitro studies	Point : 3 Justification : Select appropriate cell lines for In-vitro studies	Point : 3 Justification : Knowledge about cells helps in selecting appropriate cell lines and techniques for In-vitro studies.		Point : 2 Justification : Undertaking tasks like preservation of cells and cell lines			Point : 1 Justification : Can give message to the society about value of life	Point : 3 Justification : This will lead to respect all forms of life and preserve the environment.	Point : 3 Justification : By applying the basic concepts of Biochemistry can do research for the development of new molecules.
CO2	Point : 3 Justification : Can contribute to pharmacy knowledge		Point : 2 Justification : Identification of enzymes that catalyses oxidation reduction reactions	Point : 3 Justification : Sound knowledge of enzymes helps in electrophoresis studies		Point : 1 Justification : Educate the masses about enzyme action,			Point : 2 Justification : Knowledge of oxidative enzymes can impart significant contributions to medical world which benefit the society	Point : 3 Justification : By simulating biochemical reactions, we can produce rare substance in large quantities	Point : 3 Justification : Enhance research in the field of enzymes
CO3	Point : 3 Justification : Acquire knowledge of identifying newer	Point : 3 Justification : Select appropriate enzymes as drug targets	Point : 3 Justification : Evaluation of enzymes that can be used as drug targets	Point : 3 Justification : Helps in electrophoresis, QSAR studies		Point : 3 Justification : Explaining the pharmaceutical uses of enzymes and their storage	Point : 3 Justification : Ethics and sensitivity must be taken care while dispensing		Point : 3 Justification : Knowledge of enzymes help to develop a sustainable society	Point : 3 Justification : Healthy enzyme control mechanisms prevent oxidation reactions in food stuffs hence helps	Point : 3 Justification : Helps in development of newer drug molecules.

	<b>PO1: Pharmacy Knowledge</b>	<b>PO2: Planning Abilities</b>	<b>PO3: Problem Analysis</b>	<b>PO4: Modern tool usage</b>	<b>PO5: Leadership Skills</b>	<b>PO6: Professional Identity</b>	<b>PO7: Pharmaceutical ethics</b>	<b>PO8: Communication</b>	<b>PO9: The Pharmacist and society</b>	<b>PO10: Environment and sustainability</b>	<b>PO11: Life Long learning</b>
	targets of drug action						therapeutic agents			to avoid harmful pesticides.	
CO4	Point : 3 Justification : Get the knowledge about various biomolecules as nutrients and therapeutic agents.	Point : 3 Justification : For select 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 : 3 Justification : Patient counseling on proper nutrition	Point : 3 Justification : Ethics must be there while patenting		Point : 3 Justification : Educating patients about mechanism of drug action	Point : 3 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
CO5	Point : 3 Justification : Knowledge about advanced methods like gene therapy, role of genetics in disease e.t.c	Point : 3 Justification : Select appropriate therapeutic agents by minimizing genotoxicity	Point : 3 Justification : Can analyze the genetics behind the disease	Point : 3 Justification : Knowledge about genetics helpful in flow cytometric studies.	Point : 3 Justification : Work as a team leader in cell line studies genotoxic studies	Point : 3 Justification : Helps to predict drug toxicity and efficacy	Point : 3 Justification : Knowledge of genetics will help in designing ethical based animal studies		Point : 3 Justification : Knowledge of genetics can help to change many misconceptions prevail in society	Point : 3 Justification : Knowledge about genetics helps to change many misconceptions about diseases.	Point : 3 Justification : Can apply in the field of pharmacogenomics
Average Score	3	2.5	2.8	3	3	2.4	3		2.4	3	3

Generated at : 06/06/2023 12:40:54



# 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	B Pharm
Batch	2021-2025
Semester	2
Subject	Pathophysiology – Theory

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	BP 204T.1	Knowledge of the etiology of various conditions		Understand	Maneesha Peter
2	BP 204T.2	Understanding of basic pathophysiological mechanisms of various conditions with reference to its pharmacological applications		Understand	Maneesha Peter
3	BP 204T.3	Thorough knowledge of the signs and symptoms of various conditions		Understand	Maneesha Peter
4	BP 204T.4	Understand the complications of various conditions, transmission and preventive measures		Understand	Maneesha Peter
5	BP 204T.5	Acquire skills and knowledge for patient and community education on the various diseases		Apply	Maneesha Peter

Generated at : 06/06/2023 10:21:22





# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha
Course	B Pharm
Batch	2021-2025
Semester	2
Subject	Pathophysiology – 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
BP 204T.1	Point : 3 Justification : Acquires basic knowledge of pathophysiologic mechanisms of diseases		Point : 3 Justification : Considering each disease as a problem-- elicit response from students on how it occurs, how it can be tackled. Done by giving case studies			Point : 2 Justification : knowledge of etiology of diseases is pre-requisite for understanding pharmacologic applications which is essential for practicing pharmacy		Point : 3 Justification : Asking questions, seeking opinions, encouraging discussions in each class improve communication skills	Point : 3 Justification : Encouraging students to take initiatives to educate society regarding the etiology to decrease the occurrence of diseases		Point : 2 Justification : Encouraging students to engage in updating new theories by attending seminars, watching talks, referring journals, newspaper events, etc.
BP 204T.2	Point : 3 Justification : Understanding of basic pathophysiological mechanisms of various conditions with reference to its pharmacological applications		Point : 3 Justification : Considering each disease as a problem-- elicit response from students on how it occurs, how it can be tackled. Done			Point : 2 Justification : Basic knowledge of pathophysiologic mechanisms of diseases is pre-requisite for understanding pharmacologic applications which is essential for		Point : 3 Justification : Asking questions, seeking opinions, encouraging discussions in each class improve communication skills			Point : 2 Justification : Encouraging students to engage in updating new theories by attending seminars, watching

	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
			by giving case studies			practicing pharmacy					talks, referring journals, newspaper events, etc
BP 204T.3	Point : 3 Justification : Acquires knowledge of the signs and symptoms and complications of various conditions		Point : 3 Justification : Considering each disease as a problem-- elicit response from students on how it occurs, how it can be tackled. Done by giving case studies			Point : 2 Justification : Knowledge of signs, symptoms and complications is important for better patient care in practicing pharmacy	Point : 1 Justification : Considering human ethics and values addressing health related issues	Point : 3 Justification : Asking questions, seeking opinions, encouraging discussions in each class improve communication skills	Point : 3 Justification : Encouraging students to take initiatives to educate society regarding the signs and symptoms of diseases		
BP 204T.4	Point : 3 Justification : Gets better understanding about the preventive strategies of various conditions		Point : 3 Justification : Considering each disease as a problem-- elicit response from students on how it occurs, how it can be tackled. Done by giving case studies			Point : 2 Justification : Understanding the precautions and strategies to prevent various conditions is important in educating patients and community while practicing pharmacy	Point : 1 Justification : Considering human ethics and values addressing health related issues	Point : 3 Justification : Asking questions, seeking opinions, encouraging discussions in each class improve communication skills	Point : 3 Justification : Encouraging students to take initiatives to educate society regarding the complications of various conditions and preventive strategies of various conditions	Point : 3 Justification : Identifying and solving environmental problems that will help preventing occurrence of diseases	Point : 2 Justification : Encouraging students to engage in updating recent strategies by attending seminars, watching talks, referring journals, newspaper events, etc
BP 204T.5	Point : 3 Justification : Gains skills and knowledge for patient and community education on the various diseases		Point : 3 Justification : Considering each disease as a problem-- elicit response from students on how it occurs, how it can be tackled. Done			Point : 2 Justification : skills and knowledge for patient and community education on the various diseases is important in educating patients and community while practicing pharmacy	Point : 1 Justification : Considering human ethics and values addressing health related issues	Point : 3 Justification : Understanding of skills needed for patient and community education	Point : 3 Justification : Understanding of skills needed for patient and community education		



	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
			by giving case studies								
Average Score	3		3			2	1	3	3	3	2

Generated at : 06/06/2023 12:41:30





# 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	B Pharm
Batch	2021-2025
Semester	2
Subject	Environmental sciences – Theory *

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	BP 206.1	Utilize the knowledge of natural resources and assist to solve associated problems.		Apply	Merrin Joseph
2	BP 206.2	Impact basic knowledge about the ecosystem and its allied problems. Develop an attitude of concern for the environment and acquire skills to help the concerned individuals in identifying and solving environmental problems		Understand	Merrin Joseph
3	BP 206.3	ivate learner to participate in environment protection and improvement by giving proper directions on disposal of pharmaceutical wastes.		Create	Merrin Joseph

Generated at : 06/06/2023 10:23:31





# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha
Course	B Pharm
Batch	2021-2025
Semester	2
Subject	Environmental sciences – 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
BP 206.1	Point : 3 Justification : knowledge of natural resources	Point : 3 Justification : careful use of non renewable resources							Point : 3 Justification : efficient use of resources prevents impacts of pollution	Point : 3 Justification : sustainable uses of resources	
BP 206.2	Point : 3 Justification : knowledge in components of ecosystem	Point : 3 Justification : effective prevention of ecosystem							Point : 3 Justification : motivation for voluntwrs in this field	Point : 3	
BP 206.3	Point : 3 Justification : eknowledge of principles of estimation of marker compounds								Point : 3 Justification : prevent soil,airr,and water pollution	Point : 3 Justification : use of ecofriendly packing items in consumables and pharmaceuticals	

	<b>PO1: Pharmacy Knowledge</b>	<b>PO2: Planning Abilities</b>	<b>PO3:Problem Analysis</b>	<b>PO4:Modern tool usage</b>	<b>PO5: Leadership Skills</b>	<b>PO6:Professional Identity</b>	<b>PO7 Pharmaceutical ethics</b>	<b>PO8:Communication</b>	<b>PO9: The Pharmacist and society</b>	<b>PO10:Environment and sustainability</b>	<b>PO11:Life Long learning</b>
Average Score	3	3							3	3	

Generated at : 06/06/2023 12:42:07



# 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	B Pharm
Batch	2021-2025
Semester	2
Subject	Human Anatomy and Physiology II – Practical

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO1	Students will gain knowledge on integumentary and special senses using specimen, models, etc.,		Apply	Emily James
2	CO2	Students will be able to determine body temperature, BMI, lung volumes and capacitances.		Evaluate	Emily James
3	CO3	To demonstrate the reflex activity and analyse results.		Evaluate	Emily James
4	CO4	Examination of functioning and status of various senses viz olfactory nerve, vision acuity testing etc		Evaluate	Emily James
5	CO5	Able to identify and describe various histological slides		Apply	Emily James

Generated at : 27/06/2023 22:21:09



## Nirmala College of Pharmacy, Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

### CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	B Pharm
Batch	2021-2025
Semester	2
Subject	Human Anatomy and Physiology II –Practical

	PO1: Pharmacy Knowledge	PO1	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: Lo learn
CO1	Point : 3		Point : 2					Point : 2	Point : 2			Point
CO2	Point : 3		Point : 2	Point : 1				Point : 2	Point : 2	Point : 3		Point
CO3	Point : 3		Point : 2					Point : 2	Point : 2			Point
CO4	Point : 3		Point : 2		Point : 1			Point : 2	Point : 2	Point : 1		Point
CO5	Point : 3		Point : 2					Point : 2	Point : 2			Point
Average Score	3		2	1	1			2	2	2		1

Generated at : 27/06/2023 22:22:12





# Nirmala College of Pharmacy, Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute		Nirmala College of Pharmacy,Muvattupuzha									
Course		B Pharm									
Batch		2021-2025									
Semester		2									
Subject		Pharmaceutical Organic Chemistry I– Practical									
	PO1: Pharmacy Knowledge	PO1	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 and s
BP208P.1	Point : 3 Justification : Be able to Identify various functional groups and organic compounds in a systematic way and reports and present the results of their own scientific works in concise mannar.		Point : 3 Justification : How to use the scientific method to evaluate the organic compound and to summarise the findings in clear and concise mannar within a given time frame.	Point : 3 Justification : Development of scientific curiosity and to analyse the unknown organic compounds in a systematic way to identify functional groups and perform experiments, interpret results and draw logical conclusions.	Point : 2 Justification : Students can utilize computational resources for searching the scientific literature and effective learning.		Point : 1 Justification : Explain the nature and mechanism of active pharmaceutical ingradient in formulations after the completion of course.	Point : 1 Justification : Honour personal values and apply ethical principles while using chemicals.	Point : 2 Justification : Demonstrate effective scientific communication skills – both written and oral. Students will be able to write reports and present the results of their own scientific works.	Point : 2 Justification : A basic understanding of organic chemistry principles are effectively used to solve problems encountered in everyday life.	Point Justifi out or exper harmi enviro
BP208P.2	Point : 3 Justification : Give basic concept of organic synthesis of drugs or intermediates		Point : 3 Justification : Able to plan the organic synthesis by common laboratory techniques including reflux, recrystallisation and filtration methods within a given time frame.	Point : 3 Justification : Utilize mathematical knowledge gained from general chemistry to perform general calculations including volume, mass and percent yield determinations.	Point : 2 Justification : Students can utilize computational resources for searching the scientific literature and effective learning.		Point : 1 Justification : Small scale synthesis of organic compound provide basic idea for the large scale synthesis of drugs which may be a new drug candidate for the future.	Point : 1 Justification : Honour personal values and apply ethical principles while using chemicals.	Point : 1 Justification : Demonstrate effective scientific communication skills – both written and oral. Students will be able to write reports and present the results of their own scientific works.	Point : 2 Justification : Organic chemistry concepts are effectively used to design drugs and cosmetics that are beneficial for the public.	Point Justifi out or exper harmi enviro
BP208P.3	Point : 3 Justification : Understand and reproduce the acceptable mechanism of organic reactions including all intermediates, arrow, charges and resonance structures.		Point : 1 Justification : Able to predict the outcome and mechanism of simple organic reactions using a basic understanding of relative reactivity of functional groups.	Point : 2 Justification : Students will be able to integrate chemical concepts and ideas learned in lecture courses with skills learned in laboratories to identify functional groups and perform experiments, interpret results and draw logical conclusions.	Point : 2 Justification : Students can utilize computational resources for searching the reaction mechanism and effective learning through video presentations and lectures available through online.	Point : 1 Justification : Providing a platform for students to explain the reactions and mechanisms infront of a group will encourage them to face the society.	Point : 1 Justification : Those who completed graduation can teach the diploma students.	Point : 1 Justification : Honour personal values and apply ethical principles.	Point : 1 Justification : Able to write effective reports and make presentations infront of pharmacy community and society with clear cut mechanism.	Point : 2 Justification : Study of basic mechanism of organic reactions are useful in drug design and synthesis.	Point Justifi Desig exper under mech Carry exper harmi enviro
BP208P.4	Point : 3 Justification : Predicts the major and minor products of variety of reactions with appropriate stereochemistry.		Point : 2 Justification : Make plan to construct stereomodels of simple organic molecules.	Point : 3 Justification : Construction of stereomodels of simple organic molecules.	Point : 2 Justification : 3D structures and stereochemistry can be studied by Videopresentation and lectures available in web resources.		Point : 1 Justification : Those who completed graduation can teach the diploma students.	Point : 1 Justification : Honour personal values and apply ethical principles.	Point : 1 Justification : Demonstrate effective scientific communication skills – both written and oral.	Point : 1 Justification : Study of basic stereochemistry helps to design drugs based on protein structure and mechanism of action of drugs.	Point Justifi Desig exper under mech Carry exper harmi enviro
BP208P.5	Point : 3 Justification : Students will familiarize about the hazardous nature of chemicals and		Point : 3 Justification : Utilize safe and course-appropriate laboratory techniques and plan the safe	Point : 3 Justification : How to engage in safe laboratory practices.	Point : 2 Justification : Web resources provide detailed physical and chemical properties and safe handling of chemicals.	Point : 1 Justification : Students can explain the hazardous nature of chemicals where ever	Point : 2 Justification : explain the hazardous nature of chemicals and its safe handling and use.	Point : 2 Justification : Honour personal values and apply ethical principles while using chemicals.	Point : 3 Justification : To communicate effectively, verbally and written, for the purposes of conveying chemical information to public.	Point : 3 Justification : Students can explain the hazardous nature of chemicals and its safe handling.	Point Justifi dispo chemi

	its safe handling <b>PO1: Pharmacy Knowledge</b>	<b>PO1</b>	<b>PO2: Planning Abilities</b>	<b>PO3: Problem Analysis</b>	<b>PO4: Modern tool usage</b>	<b>PO5: Leadership Skills</b>	<b>PO6: Professional Identity</b>	<b>PO7 Pharmaceutical ethics</b>	<b>PO8: Communication</b>	<b>PO9: The Pharmacist and society</b>	<b>PO10 and :</b>
Average Score	3		2.4	2.8	2	1	1.2	1.2	1.6	2	2

Generated at : 27/06/2023 22:22:55







# 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	B Pharm
Batch	2021-2025
Semester	2
Subject	Pharmaceutical Organic Chemistry I – Practical

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	BP208P.1	Students will be able to Identify unknown organic compounds in a systematic way and to summarize findings in a clear and concise manner.	Students will be able to Identify unknown organic compounds in a systematic way and to summarize findings in a clear and concise manner.	Evaluate	Anu Jayamol Mathew
2	BP208P.2	Students will be able to synthesise organic drugs or intermediate involving one-step reaction in conventional methods and to report their percentage yield.	Students will be able to synthesise organic drugs or intermediate involving one-step reaction in conventional methods and to report their percentage yield.	Analyze	Anu Jayamol Mathew
3	BP208P.3	Students will be able to depict and explain detailed chemical mechanisms for all chemical reactions and reactions related to synthesis.	Students will be able to depict and explain detailed chemical mechanisms for all chemical reactions and reactions related to synthesis.	Evaluate	Anu Jayamol Mathew
4	BP208P.4	Students will be able to make stereo models of simple organic molecules.	Students will be able to make stereo models of simple organic molecules.	Create	Anu Jayamol Mathew
5	BP208P.5	Knows the proper procedures and regulations for safe handling and use of chemicals and can follow the proper procedures and regulations for safe handling when using chemicals.	Knows the proper procedures and regulations for safe handling and use of chemicals and can follow the proper procedures and regulations for safe handling when using chemicals.	Apply	Anu Jayamol Mathew

Generated at : 27/06/2023 22:22:38





# 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	B Pharm
Batch	2021-2025
Semester	2
Subject	Biochemistry – Practical

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO1	Demonstrate knowledge and understand on analysing for the presence of bio-molecules like carbohydrate and protein in body fluid	Analysing biomolecules present in the given sample of carbohydrate, protein	Analyze	Greeshma G Nair
2	CO2	Demonstrate understanding on principles that govern the nature of various bio-molecules	Understanding of principles that govern the nature of various biomolecules	Understand	Greeshma G Nair
3	CO3	Use basic laboratory skills and apparatus to obtain reproducible data from biochemical experiments	Students can able to use different laboratory apparatus from biochemical experiments	Apply	Greeshma G Nair
4	CO4	Knowledge on application of biochemical techniques	Application of different biochemical techniques	Apply	Greeshma G Nair
5	CO5	Develop understanding the significance of biochemical tests in clinical practice	Students can understand the significance of different biochemical tests for abnormal constituents of urine analysis	Understand	Greeshma G Nair

Generated at : 27/06/2023 22:23:24



# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute			Nirmala College of Pharmacy,Muvattupuzha								
Course			B Pharm								
Batch			2021-2025								
Semester			2								
Subject			Biochemistry – Practical								
	PO1: Pharmacy Knowledge	PO1	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
CO1	Point : 3 Justification : Posses knowledge and understanding on the types and sources of biomolecules		Point : 2 Justification : Possess ability to plan the different tests to be performed in order to estimate the presence of different biomolecules	Point : 3 Justification : Able to analyze and estimate a specific biomolecule and understand different error that can occur during an experiment	Point : 3 Justification : Aware of point of care testing in case of biomolecules like glucose	Point : 1 Justification : Important to ensure leadership skills to collaborate and promote hazard free handling of equipment and chemicals as assigned.	Point : 3 Justification : Understands importance of biomolecule test interpretation in professional practice	Point : 2 Justification : Understands the importance of maintaining confidentiality of lab results of patients	Point : 3 Justification : Able to communicate on analysis and interpretation of laboratory results	Point : 2 Justification : Understands role of pharmacist in interpreting biochemical test for collaboration with other health care providers for providing patient care	Point : 3 Justification : Understands the need for safe disposal of chemicals and biologicals
CO2	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.
CO3	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.
CO4	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 : Able 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 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 safe to environment when possible.
CO5	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 provide 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

	PO1: Pharmacy Knowledge	PO1	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
Average Score	2		2.2	2	2.2	2	2.4	1.8	2	1.8	2.4

Generated at : 27/06/2023 22:23:40





# 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	B Pharm
Batch	2021-2025
Semester	2
Subject	Computer Applications in Pharmacy – Practical*

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO1	To demonstrate and make use of MS Office, MS Word, MS Excel, MS Access and MS Power point.		Understand	Jobin Baby
2	CO2	To understand the paradigms of program languages and be exposed to at least one language from each model, C and SQL.		Understand	Jobin Baby
3	CO3	To summarize the report and printing the report from patient database		Understand	Jobin Baby
4	CO4	To create HTML web page to show personal information		Understand	Jobin Baby
5	CO5	To create mailing labels Using Label Wizard , generating label in MS WORD		Understand	Jobin Baby

Generated at : 27/06/2023 22:24:10





## Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

### CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha
Course	B Pharm
Batch	2021-2025
Semester	2
Subject	Computer Applications in Pharmacy – Practical*

	PO1: Pharmacy Knowledge	PO1	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 Lo learn
CO1			Point : 1	Point : 1	Point : 4							Point
CO2			Point : 1	Point : 1	Point : 3							Point
CO3	Point : 1		Point : 2	Point : 1	Point : 3							Point
CO4			Point : 1	Point : 1	Point : 3							Point
CO5			Point : 1	Point : 1	Point : 3							Point
Average Score	1		1.2	1	3.2							1.6

Generated at : 27/06/2023 22:24:27



---

---

**2.6.1:**  
**Course Outcomes (COs)**

**Program: B pharm**  
**Batch: 3<sup>rd</sup> semester**





# 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	B Pharm
Batch	2021-2025
Semester	3
Subject	Pharmaceutical Organic Chemistry II – Theory

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	BP301T.1	Understand about aromaticity, resonance and reactions of aromatic compounds.		Understand	Greeshma G Nair
2	BP301T.2	Understand the reactivity of phenols and aromatic amines.		Understand	Greeshma G Nair
3	BP301T.3	Depict and explain the purity and quality of oils and fats.		Apply	Greeshma G Nair
4	BP301T.4	Describe the chemistry of polynuclear aromatic hydrocarbons in terms of molecular orbital theory, aromaticity and reactions.		Remember	Greeshma G Nair
5	BP301T.5	Understand the stability of cycloalkanes & its reactions.		Understand	Greeshma G Nair

Generated at : 06/06/2023 10:28:51







# Nirmala College of Pharmacy, Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	B Pharm
Batch	2021-2025
Semester	3
Subject	Pharmaceutical Organic Chemistry II – 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
BP301T.1	Point : 3 Justification : Students would attain a firm foundation in the fundamentals and application of chemical and scientific theories of aromatic compounds with applications.	Point : 1 Justification : Predict the outcome of several common organic reaction types through a basic understanding of aromaticity & resonance.	Point : 2 Justification : Understanding of scientific principles and concepts and be able to apply this knowledge to the solution of problems and performance of experiments.	Point : 1 Justification : Able to drug design softwares based on reactivity of compounds.	Point : 1 Justification : Can utilize the basic knowledge about molecules to prepare new medicines to facilitate the improvement in health and well being.	Point : 1 Justification : Those who completed graduation can teach the diploma students in future.	Point : 1 Justification : Become familiar with the Safety Ethics.		Point : 1 Justification : Attain a basic understanding of organic chemistry principles to effectively solve problems encountered in everyday life and in science.	Point : 1 Justification : Demonstrate a basic understanding of how organic chemistry impacts the natural and technological environments.	Point : 2 Justification : The students should be able to apply their knowledge of the fundamental concepts and principles in organic chemistry to pharmaceuticals and then relate these concepts to drug synthesis, manufacturing and quality assurance in the practice of pharmacy.
BP301T.2	Point : 3 Justification : Able to understand the chemical nature of phenolic & aromatic compounds.	Point : 1 Justification : Can identify easily the nature of compounds for effective planning.	Point : 2 Justification : Apply the basic rules of organic nomenclature to convert between structures and names and molecular	Point : 1 Justification : Students can utilize computational resources for and studying organic molecules.				Point : 1 Justification : Communicate effectively through written and oral reports.	Point : 1 Justification : They get the idea of basic nucleus present in the organic compounds.	Point : 1 Justification : Needed for sustainability of environment.	Point : 2 Justification : By knowing reactivity, it helps to identify the basic nucleus of active pharmaceutical ingredient.

	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
			weight determination.								
BP301T.3	Point : 3 Justification : Teaches about the chemical constituents and adulterants if present in natural products.	Point : 2 Justification : The student able to plan the steps needed to identify the constituents in fats and oils.	Point : 3 Justification : Student become able to analyze and solve the problems regarding the quantification of adulterants in fats and oils.	Point : 3 Justification : Melting point determination apparatus, TLC , column chromatography.	Point : 1 Justification : Learning the chemical constituents in fats and oils makes the student to convince the people about the adulterants present in it.			Point : 1 Justification : Able to communicate the people regarding the quality and quantity of chemical constituents in fats.	Point : 1 Justification : Helps to identify adulterants in fats and oils for the safety of society.	Point : 3 Justification : Helps to professional and environmental development.	Point : 3 Justification : Independent learning is necessary to understand the natural product as starting material.
BP301T.4	Point : 3 Justification : Acquire knowledge on the chemistry of polynuclear aromatic hydrocarbons in terms of molecular orbital theory, aromaticity and reactions.	Point : 2 Justification : With this outcome, it is able to demonstrate effective planning abilities including time management, resource management, delegation skills and organizational skills for the development of new drugs and also able to develop and implement plans and organize work to meet deadlines.	Point : 2 Justification : Orbital theory & reaction mechanisms are useful in determining the actions of medicinal compounds to a particular disease.	Point : 2 Justification : Selection of appropriate procedures & instruments for problem analysis requires the knowledge about organic molecules.	Point : 1 Justification : With this outcome, it is able to do resource management, delegation skills and organizational skills for a lead role in manufacturing sector.	Point : 1 Justification : Orbital theory & reaction mechanisms are useful in determining the actions of medicinal compounds to a particular disease.		Point : 2 Justification : Able to communicate with research sector and drug industry.	Point : 1 Justification : With the knowledge on chemistry, it is able to assess health & safety issues relevant to the profession of pharmacy.	Point : 2 Justification : Drug interactions are important in drug discovery.	Point : 3 Justification : We can self-assess and use feedback effectively from others to identify learning needs and to satisfy these needs on an ongoing basis.
BP301T.5	Point : 2 Justification : Able to understand the stability of cyclic compounds in medicines.	Point : 1 Justification : Plan to prepare drugs based on stability.	Point : 2 Justification : Analyzing various drugs.	Point : 2 Justification : Students can utilize computational resources for searching the scientific literature and	Point : 1 Justification : Can play leadership roles with innovative ideas.	Point : 1 Justification : Small scale synthesis of organic compound provide basic idea for the large scale synthesis of drugs which may be a	Point : 1 Justification : Honour personal values and apply ethical principles while studying cyclic compounds.	Point : 1 Justification : Communicate effectively, verbally and written, for the purposes of conveying chemical information to both	Point : 2 Justification : Basic idea of drug stability motivate them to design new drugs in future for the	Point : 1 Justification : Needed for sustainability of environment.	Point : 2 Justification : Able to plan and evaluate the synthesis of complex drug and drug-like molecules in future.

	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
				effective learning.		new drug candidate for the future.		professional scientists and to the public.	betterment of society.		
Average Score	2.8	1.4	2.2	1.8	1	1	1	1.25	1.2	1.6	2.4

Generated at : 06/06/2023 12:45:01





# 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	B Pharm
Batch	2021-2025
Semester	3
Subject	Physical Pharmaceutics I – Theory

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO 1	Student will be able to understand solubility, dissolution and diffusion principles and its applications in biological system for improving drug action.		Understand	Melody Grace Baby
2	CO 2	Student should be able to Demonstrate use of various physicochemical properties of drug molecule in the designing and evaluation of dosage form. Student will be able to Appreciate physicochemical properties in formulation design and research		Apply	Aneeta Rose Varghese
3	CO 3	To understand the derived properties of powders like porosity, density and flow property and the fundamental properties of drug like particle size distribution, shape and surface area. This will help to study the impact of powder properties on the design of dosage form and the influence of these properties on the disintegration rate, dissolution and absorption.		Understand	Aneeta Rose Varghese
4	CO 4	Student will be able to understand the different types of complexes which the drugs form and the properties of such complexes		Understand	Aneeta Rose Varghese
5	CO 5	Student will be able to know about pH scale and determination also different buffers and isotonic solution in biological system		Understand	Melody Grace Baby

Generated at : 06/06/2023 10:30:46



# Nirmala College of Ph

Muvattupuzha P.O Ernakulam District Kerala, India, Pin:686661  
Email : info@nirmalacp.org, Phone : 04852836888



1a

## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha
Course	B Pharm
Batch	2021-2025
Semester	3
Subject	Physical Pharmaceutics I – 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 Skills	PO9: The Pharmacist and society	PO10:Environment and sustainability	PO11:Life Long learning
CO 1	Point : 3 Justification : Teaches about solubility, solution mechanism, factors affecting it, different types, dissolution, diffution and distillation process that enables the student to study the impact of solubility on the design of dosage form	Point : 2 Justification : After learning it the student get the concept of solute solvent interaction, dissolution and diffusion and can plan the selection of dissolution apparatus and requirements for improving solubility	Point : 2 Justification : Can analyze problems affecting dissolution and diffusion during the designing of dosage forms	Point : 2 Justification : Dissolution apparatus, diffution apparatus, distillators	Point : 2 Justification : Learning solubility parameters and distribution nature will help a student to debate and convinse production unit incharges in pharmaceutical industries	Point : 2 Justification : Provides them professional role in discussion with the production in charges in pharmaceutical industry		Point : 2 Justification : This practical knowledge could able to teach students more effectively	Point : 1 Justification : Solubity properties can affect dissolution and diffution of dosage forms, can leads to change in absorbtion and that finally affects the customers compliance		Point : 3 Justification : Will able to deliver the drug from containers smoothly and spread uniformly at the site of application which serves as a long term application in future
CO 2	Point : 3 Justification : Teaches different states of matter in which drugs exist and physicochemical properties of drug molecules, its determination and applications	Point : 3 Justification : After learning about the physicochemical properties, the students can plan the procedure to conduct evaluation of these propertes	Point : 3 Justification : Can analyse the changes encountered by a formulation under different changes in the states of matter like polymorphism, amorphism and physicochemical properties	Point : 2 Justification : Refractometer, polarizer	Point : 2 Justification : Studying about the physicochemical properties of drug molecules helps to teach , and cinvinse the people and can become a leader	Point : 2 Justification : Provides them professional knowledge on the physicochemical properties of drug molecules like refractive index, optical rotation and dissociation constant		Point : 2 Justification : Practical knowledge on physicochemical properties of drug molecules can make strong presentations regarding drug characters	Point : 2 Justification : A person deals with drugs must be aware about the importance of different properties and its impact on the safety and efficacy		Point : 3 Justification : This outcome always applies in the future for development of stable dosage forms

	<b>PO1: Pharmacy Knowledge</b>	<b>PO2: Planning Abilities</b>	<b>PO3: Problem Analysis</b>	<b>PO4: Modern tool usage</b>	<b>PO5: Leadership Skills</b>	<b>PO6: Professional Identity</b>	<b>PO7: Pharmaceutical ethics</b>	<b>PO8: Communication</b>	<b>PO9: The Pharmacist and society</b>	<b>PO10: Environment and sustainability</b>	<b>PO11: Life Long learning</b>
CO 3	Point : 3 Justification : Teaches about the derived properties and fundamental properties of powders like porosity, density and flow property and particle size distribution, shape and surface area that enables the student to study the impact of powder properties on the design of dosage form	Point : 3 Justification : After learning it the student gets the concept of flow properties of solid and liquid dosage forms and can plan the selection of containers and requirements for the addition of flow promoters	Point : 3 Justification : Can analyze problems such as poor flow during the time of manufacture, poor spreadability, poor flow from the containers	Point : 3 Justification : Optical microscopy And Tablet punching machine	Point : 2 Justification : Learning rheology will help a student to debate and convince production unit in charges in pharmaceutical industries	Point : 3 Justification : Provides them professional role in discussion with the production in charges in pharmaceutical industry		Point : 2 Justification : This practical knowledge could be able to teach students more effectively	Point : 1 Justification : Flow properties can affect the filling of formulation in containers. Poor flow property can lead to improper filling of containers that cause variations within the batch and finally dose variations that finally affect the customer's compliance		Point : 3 Justification : Will be able to deliver the drug from containers smoothly and spread uniformly at the site of application which serves as a long term application in future
CO 4	Point : 3 Justification : Teaches about types of complexes and their applications in pharmacy	Point : 3 Justification : Students can plan about the selection of a stable drug-carrier complex and study the influence on stability, taste and physical and chemical properties	Point : 3 Justification : Learning about various complexation techniques gives the skill to detect the stability problems of drugs in both free form and complexed form	Point : 3 Justification : Calorimetric and spectrophotometric analysis, Franz diffusion cell	Point : 2 Justification : Learning on complexation techniques makes a student understand the stability enhancement of some drug by complexation with ligands in dosage form design field.	Point : 3 Justification : Provides them professional role in discussion with doctors		Point : 2 Justification : Able to communicate to people regarding protein binding that may happen along with food and drug	Point : 1 Justification : Helps to develop new drug complexes for the society based on improvement in stability and drug solubility, which in turn affects the bioavailability of drugs in patients. Complexation methods are also employed in taste masking thereby		Point : 3 Justification : Any ex vivo study can be conducted in future based on complexation and protein, DNA, drug binding

	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
									increasing patient compliance and acceptance.		
CO 5	Point : 3 Justification : Teaches about the pH, buffers and isotonic solutions and their pharmaceutical applications	Point : 2 Justification : Students can plan about selecting the right type of buffers based on their buffer capacity and applications for dosage form preparations	Point : 2 Justification : Can analyse problems encountered by the selection of wrong buffer and isotonic solutions for preparation and evaluation of dosage forms.		Point : 2 Justification : Studying on buffers and their mechanism of action helps one to authenticate the selection of right buffering systems and the problem solving motivate and encourage the students	Point : 2 Justification : Provides them professional role in conversion formula developing scientists		Point : 2 Justification : Learning this able to teach the people strongly with confidence	Point : 3 Justification : Buffers and isotonic solutions enhance the patient compliance by improving drug action.		Point : 2 Justification : Use of buffers will enhance stability, solubility and bioavailability of dosage forms it should be applied on lifelong learning
Average Score	3	2.6	2.6	2.5	2	2.4		2	1.6		2.8

Generated at : 06/06/2023 12:45:40





# 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	B Pharm
Batch	2021-2025
Semester	3
Subject	Pharmaceutical Microbiology – Theory

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	C308.1	To understand the growth factors and physical conditions for growth of microbes		Understand	Vincy Varghese
2	C308.2	To understand the motility, staining and biochemical characteristics of microorganisms		Understand	Vincy Varghese
3	C308.3	To understand and apply the principle of aseptic transfer		Understand	Vincy Varghese
4	C308.4	To be able to understand and apply sterility testing I. P., microbial sensitivity testing and assay of antibiotics		Understand	Vincy Varghese
5	C308.5	To understand sterilization techniques		Understand	Vincy Varghese

Generated at : 06/06/2023 10:32:40







# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha
Course	B Pharm
Batch	2021-2025
Semester	3
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
C308.1	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 : 1 Justification : Equip oneself with the self- sufficient knowledge to grow micro organisms	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 : 2 Justification : Student can effectively communicate the growth requirement of given bacterium to the scientific world	Point : 1 Justification : Inhibition of Spread of communicable disease need understanding of growth of microbes	Point : 2 Justification : Useful microbes need to be sustained which need understanding their growth requirements	Point : 1 Justification : Growth requirements of new microorganisms pave a way for continuous learning
C308.2	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 : 1 Justification : The student can come forward with correct method for bacterial identification	Point : 2 Justification : Characterization of bacteria as gram positive or negative help pharmacist in selection of correct antimicrobial for treatment	Point : 1 Justification : Accurate disease identification is made possible	Point : 2 Justification : Identify the correct microbe and can be communicated to rest of the world effectively	Point : 2 Justification : Social epidemics of infections can be correctly identified by these techniques	Point : 2 Justification : For the environment to survive microbes need to be identified and maintained	Point : 1 Justification : 1 Identification of new enzymes, cell wall characteristics open a platform for long term learning
C308.3	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	Point : 1 Justification : Modern tools like uv sterilizer are part of aseptic cabinets used	Point : 1 Justification : With the knowledge a student can independently perform the	Point : 2 Justification : Spread of infectious microbe can be inhibited by correct	Point : 2 Justification : Application of correct sterilization procedure can prevent release	Point : 2 Justification : For each type of dosage from, unique method of sterilization is required and it can be	Point : 1 Justification : Prevention of sterile product contamination and thereby	Point : 1 Justification : Pathogenic microbe has to be removed from humans for disease prevention	Point : 1 Justification : Emerging under standings on sterilization techniques help

	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
			like failure of test for sterility		sterilization of given pharmaceutical product	sterilization method	of failure sterile products to market	effectively communicated	public health protection		in lifelong learning
C308.4	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 : 2 Justification : One can come to conclusion on given drug can be used for Infection or not	Point : 2 Justification : Selection of antibiotic for patients	Point : 1 Justification : Right antibiotic for right infection and thereby preventing irrational prescriptions and development of antibiotic resistance	Point : 2 Justification : Communications on antibiotic resistance	Point : 2 Justification : Rational antibiotic selection prevent spread of antibiotic resistance and hence gain in public health scenario	Point : 2 Justification : Soil, water etc. need to be protected from antimicrobial pollution to maintain the environmental sustainability	Point : 1 Justification : As new antimicrobials are reported everyday it is an area of consistent change
C308.5	Point : 3 Justification : Impart knowledge on different methods of sterilization	Point : 2 Justification : Plan for correct method of sterilization to be opted for given pharmaceutical product.	Point : 1 Justification : Analyse the problems of sterility in pharmaceutical products	Point : 1 Justification : Automated autoclaves and tunnel oven are examples of modern tools for sterilization	Point : 1 Justification : Independently perform the aseptic handling	Point : 1 Justification : Thorough understanding of aseptic handling can make the pharmacist aware of preventive measure for spread of infection	Point : 1 Justification : Assurance of aseptic conditions ensure assured sterility of medicaments	Point : 2 Justification : Communicate effectively on matters related to maintenance of aseptic conditions	Point : 2 Justification : Help to ensure sterility in manufacture of medicaments and prevent infection	Point : 2 Justification : Spread of communicable disease in given environment can be prevented by aseptic technique	Point : 2 Justification : Aseptic processing techniques are updated daily and one need a clear picture on the same
Average Score	3	2	1.8	1	1.2	1.8	1.2	2	1.6	1.8	1.2



**Nirmala Coll**

Muvattupuzha P.O. Ernakulam

Email : info@nirmalacp



**Muvattupuzha**

n:686661

## Course Outcome

Institute	Nirmala College of Pharmacy,Muvattupuzha
Course	B Pharm
Batch	2021-2025
Semester	3
Subject	Pharmaceutical Engineering – Theory

Sl.No	CO Code	Corse Outcome	Description	Bloom Level	Created_by
1	CO1	Various processes involved in pharmaceutical industry		Understand	Vincy Varghese
2	CO2	Principle , working, and theory behind equipments that is using in pharmaceutical industry		Understand	Vincy Varghese
3	CO3	Materials used in the pharmaceutical industry and its handling		Understand	Vincy Varghese
4	CO4	Prevention of corrosion and mechanical damages		Remember	Vincy Varghese
5	CO5	Making and following a standard Procedure and methods in various processes		Understand	Vincy Varghese

Generated at : 06/06/2023 10:34:48



# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha
Course	B Pharm
Batch	2021-2025
Semester	3
Subject	Pharmaceutical Engineering – 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
CO1	Point : 3 Justification : Includes important processes involved in the industry			Point : 3		Point : 2					
CO2	Point : 3 Justification : Student will get a sound knowledge about the pharmaceutical equipments and theory behind it			Point : 3		Point : 2		Point : 3 Justification : Student will be able to communicate and explain working principles of equipments			Point : 2 Justification : Knowledge about the equipments encourage students to be updated.
CO3				Point : 2			Point : 2 Justification : Students will be aware about the materials used for the construction of equipments and using in manufacturing of pharmaceuticals. Also they will study about modern tools for handling , safety concern,		Point : 2 Justification : Students will be aware about the materials used for the construction of equipments and using in manufacturing of pharmaceuticals. Also they will study about modern tools for handling , safety concern,	Point : 2 Justification : Students will be aware about the materials used for the construction of equipments and using in manufacturing of pharmaceuticals. Also they will study about modern tools for handling , safety concern, sources of materials and also encourage them to	Point : 2 Justification : Students will be aware about the materials used for the construction of equipments and using in manufacturing of pharmaceuticals. Also they will study about modern tools for handling , safety concern, sources of materials and

	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
							sources of materials and also encourage them to search new sources of material		sources of materials and also encourage them to search new sources of material	search new sources of material	also encourage them to search new sources of material
CO4	Point : 3 Justification : Students will get a knowledge of corrosions , its prevention planning, crisis management, measures to be taken , quick communication with team members, need of continuouse search for more safety measures etc.	Point : 3 Justification : Students will get a knowledge of corrosions , its prevention planning, crisis management, measures to be taken , quick communication with team members, need of continuouse search for more safety measures etc.	Point : 3 Justification : Students will get a knowledge of corrosions , its prevention planning, crisis management, measures to be taken , quick communication with team members, need of continuouse search for more safety measures etc.	Point : 3 Justification : Students will get a knowledge of corrosions , its prevention planning, crisis management, measures to be taken , quick communication with team members, need of continuouse search for more safety measures etc.	Point : 3 Justification : Students will get a knowledge of corrosions , its prevention planning, crisis management, measures to be taken , quick communication with team members, need of continuouse search for more safety measures etc.	Point : 3 Justification : Students will get a knowledge of corrosions , its prevention planning, crisis management, measures to be taken , quick communication with team members, need of continuouse search for more safety measures etc.		Point : 3 Justification : Students will get a knowledge of corrosions , its prevention planning, crisis management, measures to be taken , quick communication with team members, need of continuouse search for more safety measures etc.	Point : 1 Justification : Students will get a knowledge of corrosions , its prevention planning, crisis management, measures to be taken , quick communication with team members, need of continuouse search for more safety measures etc.		
CO5	Point : 3 Justification : Students will get to know how can he conduct a process and how to improve the efficiency of process	Point : 3 Justification : Students will get to know how can he conduct a process and how to improve the efficiency of process	Point : 3 Justification : Students will get a knowledge of corrosions , its prevention planning, crisis management, measures to be taken , quick communication with team members, need of continuouse search for more safety measures etc.	Point : 2 Justification : Students will get to know how can he conduct a process and how to improve the efficiency of process	Point : 3 Justification : Students will get to know how can he conduct a process and how to improve the efficiency of process	Point : 3 Justification : 3 Students will get to know how can he conduct a process and how to improve the efficiency of process		Point : 3 Justification : Students will get to know how can he conduct a process and how to improve the efficiency of process			Point : 3 Justification : Students will get to know how can he conduct a process and how to improve the efficiency of process
Average Score	3	3	3	2.6	3	2.5	2	3	1.5	2	2.33333333333333



# 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	B Pharm
Batch	2021-2025
Semester	3
Subject	Communication skills – Theory * 2

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	c01	Upon completion of the course the student will be able to communicate fearlessly. they can identify the stage of communication while they communicate, so they become effective communicators. Understand the communication barriers and they identify their communication barriers. and they easily overcome those barriers. Change their narrow thinking and start broad thinking. Enlarging their communication capacity. use good body and sound techniques of communication. They easily assume the communication styles of different people they communicate with. They are able to use the most effective communication styles in different situations.		Apply	Athira James
2	CO2	Upon completion of the course the student will be able to identify the importance of listening in communication, and become good listeners in the communication process. Improve their general writing capacity and also improve their literary writing capacity. handle different styles of writing.		Analyze	Athira James
3	CO3	Upon completion of the course the student will be able to attend an interview effectively without any fear. And make sure that they can produce their best during an interview. They can improve their confidence with enough practice.		Apply	Athira James
4	CO4	Upon completion of the course the student will be able to Improve their presentation skills.		Create	Athira James
5	CO5	Upon completion of the course the students will be able to 1. Do more about Group discussions. Through practice they can develop their communication skills and also general awareness. And help to overcome their stage fear.		Apply	Athira James

Generated at : 06/06/2023 10:26:11





# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha
Course	B Pharm
Batch	2021-2025
Semester	3
Subject	Communication skills – Theory * 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
c01		Point : 1 Justification : identify their own communication barriers	Point : 1 Justification : identify their own communication barriers	Point : 1 Justification : get familiar with electronic media communication	Point : 3 Justification : overcome their fear and become excellent leaders			Point : 3 Justification : improve their better communication capacity		Point : 2 Justification : able to understand their surroundings	Point : 2 Justification : very necessary to build a career
CO2			Point : 1 Justification : identify their drawbacks		Point : 2 Justification : know how to become a good leader			Point : 3 Justification : improve their communication and listening skills		Point : 3 Justification : start respect their surroundings	Point : 3 Justification : necessary to improve their listening and communication skills
CO3		Point : 3 Justification : able to pre plan an interview	Point : 2 Justification : identify their own communication errors		Point : 2 Justification : they can become worth employees			Point : 3 Justification : become smart to attend interviews			Point : 3 Justification : useful in their career growth
CO4		Point : 4 Justification : able to give smart presentations		Point : 2 Justification : learn to use modern presentation equipments	Point : 3 Justification : learn to use modern presentation equipments			Point : 3 Justification : improve communication skills			Point : 3 Justification : become smart presenters

	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
CO5		Point : 3 Justification : improve their planning skills	Point : 3 Justification : they think more about a topic and find solutions for problems	Point : 2 Justification : get infested to handle modern communication tools to express their ideas	Point : 3 Justification : make them good leaders			Point : 3 Justification : improve communication capacity		Point : 2 Justification : learn to respect the surroundings	Point : 3 Justification : help to be authentic in society
Average Score		2.75	1.75	1.6666666666667	2.6			3		2.3333333333333	2.8

Generated at : 06/06/2023 12:44:14







# 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	B Pharm
Batch	2021-2025
Semester	3
Subject	Pharmaceutical Organic Chemistry II – Practical

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	BP305P	Able to do the purification of organic compounds & extracted products		Understand	Greeshma G Nair
2	BP305P	Able to analyze the purity & quality of fats & oils in manufacturing sector		Remember	Greeshma G Nair
3	BP305P	Students will be able to synthesise organic drugs or intermediate involving one-step reaction in conventional methods and to report their percentage yield.		Understand	Greeshma G Nair
4	BP305P	Students will be able to depict and explain detailed chemical mechanisms for all chemical reactions and reactions related to synthesis.		Apply	Greeshma G Nair
5	BP305P	Knows the proper procedures and regulations for safe handling and use of chemicals and can follow the proper procedures and regulations for safe handling when using chemicals.		Remember	Greeshma G Nair

Generated at : 17/07/2023 10:34:00





# Nirmala College of Pharmacy, Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute		Nirmala College of Pharmacy,Muvattupuzha									
Course		B Pharm									
Batch		2021-2025									
Semester		3									
Subject		Pharmaceutical Organic Chemistry II – Practical									
	PO1: Pharmacy Knowledge	PO1	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:Impact on society and environment
BP305P	Point : 3 Justification : Be able to do the quality control processes in production level		Point : 3 Justification : Able to plan the organic synthesis by common laboratory techniques including reflux, recrystallisation and filtration methods within a given time frame.	Point : 3 Justification : Development of scientific curiosity and to analyze extracts in a systematic way and perform experiments, interpret results and draw logical conclusions.	Point : 3 Justification : Students can utilize computational resources for searching the scientific literature and effective learning.	Point : 1 Justification : Can take lead in quality control process in industrial level.	Point : 2 Justification : Explain the quality and purity of active pharmaceutical ingredient in formulations after the completion of course.	Point : 1 Justification : Honour personal values and apply ethical principles while using chemicals.	Point : 2 Justification : Demonstrate effective scientific communication skills – both written and oral. Students will be able to write reports and present the results of their own scientific works	Point : 2 Justification : A basic understanding of organic chemistry principles are effectively used to solve problems encountered in everyday life.	Point : 1 Justification : out org experin harmin; envirom
BP305P	Point : 3 Justification : Able to know the adulterants present in fats and oils.		Point : 3 Justification : How to use the scientific method to purify an organic compound and to summarise the findings in clear and concise mannar within a given time frame.	Point : 3 Justification : Utilize mathematical knowledge gained from general chemistry to perform general calculations including acid value, saponification value, iodine value and purity determinations.	Point : 3 Justification : Students can utilize various tools which are involved in adulterant determination	Point : 3 Justification : By using this outcome, students should get various leading role in quality assurance work.	Point : 3 Justification : Can able to give better communication by knowing the quality of fatty products.	Point : 3 Justification : Can keep professional ethics by confirming the purity and quality of marketed products.	Point : 3 Justification : Demonstrate effective scientific communication skills – both written and oral.	Point : 3 Justification : The concept of quality management is beneficial for the society.	Point : 1 Justification : Justification : out org experin harmin; envirom
BP305P	Point : 3 Justification : Give basic concept of organic synthesis of drugs or intermediates.		Point : 3 Justification : Able to plan the organic synthesis by common laboratory techniques including reflux, recrystallisation and filtration methods within a given time frame.	Point : 3 Justification : Utilize mathematical knowledge gained from general chemistry to perform general calculations including volume, mass and percent yield determinations.	Point : 2 Justification : Students can utilize computational resources for searching the scientific literature and effective learning		Point : 1 Justification : Small scale synthesis of organic compound provide basic idea for the large scale synthesis of drugs which may be a new drug candidate for the future.	Point : 1 Justification : Honour personal values and apply ethical principles while using chemicals.	Point : 1 Justification : Demonstrate effective scientific communication skills – both written and oral. Students will be able to write reports and present the results of their own scientific works,	Point : 2 Justification : Organic chemistry concepts are effectively used to design drugs and cosmetics that are beneficial for the public.	Point : 1 Justification : Justification : out org experin harmin; envirom
BP305P	Point : 3 Justification : Understand and reproduce the acceptable mechanism of organic reactions including all intermediates, arrow, charges and resonance structures.		Point : 1 Justification : Able to predict the outcome and mechanism of simple organic reactions using a basic understanding of relative reactivity of functional groups.	Point : 2 Justification : Students will be able to integrate chemical concepts and ideas learned in lecture courses with skills learned in laboratories to identify functional groups and perform experiments, interpret results and draw logical conclusions.	Point : 2 Justification : Students can utilize computational resources for searching the reaction mechanism and effective learning through video presentations and lectures available through online.	Point : 1 Justification : Providing a platform for students to explain the reactions and mechanisms infront of a group will encourage them to face the society.	Point : 1 Justification : Those who completed graduation can teach the diploma students	Point : 1 Justification : Honour personal values and apply ethical principles	Point : 1 Justification : Able to write effective reports and make presentations infront of pharmacy community and society with clear cut mechanism.	Point : 2 Justification : Study of basic mechanism of organic reactions are useful in drug design and synthesis	Point : 1 Justification : Design experin under/ mechani Carry c experin harmin; envirom
BP305P	Point : 3 Justification :		Point : 3 Justification :	Point : 3 Justification :	Point : 2 Justification :	Point : 2 Justification :	Point : 2 Justification :	Point : 2 Justification :	Point : 3 Justification : To	Point : 3 Justification :	Point : 1 Justification : Justification :

	PO1: Pharmacy Knowledge	PO1	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: Impact and sustainability
	Students will familiarize about the hazardous nature of chemicals and its safe handling.		Utilize safe and course-appropriate laboratory techniques and plan the safe disposal of chemicals.	How to engage in safe laboratory practices.	Web resources provide detailed physical and chemical properties and safe handling of chemicals.	Students can explain the hazardous nature of chemicals where ever they go without any fear and difficulty.	explain the hazardous nature of chemicals and its safe handling and use.	Honour personal values and apply ethical principles while using chemicals.	communicate effectively, verbally and written, for the purposes of conveying chemical information to public	Students can explain the hazardous nature of chemicals and its safe handling.	dispose of chemicals safely.
Average Score	3		2.6	2.8	2.4	1.75	1.8	1.6	2	2.4	2

Generated at : 17/07/2023 10:34:33





# 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	B Pharm
Batch	2021-2025
Semester	3
Subject	Physical Pharmaceutics I – Practical

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO1	To understand the derived properties of powders like porosity, density and flow property that enables the student to study the impact of powder properties on the design of dosage form	to understand	Understand	Aneeta Rose Varghese
2	CO2	To predict the rate of solubility of a drug under the influence of temperature.	to evaluate	Evaluate	Aneeta Rose Varghese
3	CO3	To predict the pKa and partition coefficient of different drugs that enables to understand its distribution nature.	to understand	Understand	Aneeta Rose Varghese
4	CO4	To analyze the fundamental properties of drug like particle size and particle size distribution. This will help to study the influence of these properties on the disintegration rate, dissolution and absorption.	to understand	Understand	Aneeta Rose Varghese
5	CO5	To analyze the stability constant and donor acceptor ratio of different complexes.	to analyse	Analyze	Aneeta Rose Varghese

Generated at : 17/07/2023 10:35:34





# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha										
Course	B Pharm										
Batch	2021-2025										
Semester	3										
Subject	Physical Pharmaceutics I – Practical										
	PO1: Pharmacy Knowledge	PO1	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:Envirc and sustain
CO1	Point : 3 Justification : Teaches about the derived properties of powders like porosity, density and flow property that enables the student to study the impact of powder properties on the design of dosage form		Point : 3 Justification : After learning it the student get the concept of flow properties of solid and liquid dosage forms and can plan the selection of containers and requirements for the addition of flow promoters..	Point : 3 Justification : Can analyze problems such as poor flow during the time of manufacture, poor spreadability, poor flow from the containers	Point : 1 Justification : Multipoint viscometers	Point : 2 Justification : Learning rheology will help a student to debate and convince production unit incharges in pharmaceutical industries	Point : 3 Justification : Provides them professional role in discussion with the production in charges in pharmaceutical industry		Point : 3 Justification : This practical knowledge could able to teach students more effectively.	Point : 2 Justification : Flow properties can affect the filling of formulation in containers. Poor flow property can leads to improper filling of containers that cause variations within the batch and finally dose variations that finally affects the customers compliance.	
CO2	Point : 3 Justification : Teaches about solubility, solution mechanism, and factors affecting it on the design of dosage form		Point : 3 Justification : After learning it the student get the concept of solute solvent interaction, and can plan the procedure and requirements for conducting solubility studies.	Point : 3 Justification : Can analyze problems affecting solubility during the designing of dosage forms	Point : 1 Justification : Dissolution apparatus	Point : 2 Justification : Learning solubility parameters will help a student to debate and convince production unit incharges in pharmaceutical industries	Point : 3 Justification : Provides them professional role in discussion with the production in charges in pharmaceutical industry	Justification : -	Point : 3 Justification : This practical knowledge could able to teach students more effectively.	Point : 1 Justification : Solubility properties can affect dissolution and diffution of dosage forms, can leads to change in absorbtion and that finally affects the customers compliance.	Justification :
CO3											
CO4											
CO5											
Average Score	3		3	3	1	2	3		3	1.5	

Generated at : 17/07/2023 10:37:00





# 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	B Pharm
Batch	2021-2025
Semester	3
Subject	Pharmaceutical Microbiology – Practical

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	BP307P.1P	attain basic knowledge about different equipment processing used in experimental microbiology and basic sterilization methods.		Apply	Vincy Varghese
2	BP307P.2P	acquire practical knowledge for sub culturing different microorganisms and their methods of isolation		Apply	Vincy Varghese
3	BP307P.3P	gain practical knowledge to identify and differentiate different microorganism and their viability		Analyze	Vincy Varghese
4	BP307P.4P	achieve knowledge about antibiotics and their microbiological assay and sterility testing of different pharmaceutical product		Apply	Vincy Varghese
5	BP307P.5P	earn knowledge about different biochemical tests for the identification of microorganism and bacteriological analysis of water		Understand	Vincy Varghese

Generated at : 17/07/2023 10:34:56





# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha									
Course	B Pharm									
Batch	2021-2025									
Semester	3									
Subject	Pharmaceutical Microbiology – Practical									
	PO1: Pharmacy Knowledge	PO1	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
BP307P.1P	Point : 3 Justification : different equipments like autoclave, B.O.D, L A F , hot air sterilizer and different sterilization methods provide the students with good pharmacy knowledge.		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			Point : 2 Justification : important of sterilization provide the need of sterility related to microbiology	Point : 2 Justification : interpretation of sterilization methods and reaching to conclusions making effective presentations and documentation	Point : 3 Justification : learning different equipments for sterility and sterilization methods provide the knowledge about the importance of sterility
BP307P.2P	Point : 3 Justification : subculturing of different microorganism like bacteria and fungus and different isolation methods		Point : 3 Justification : preparation of different culture media for sub culturing and isolation		Point : 2 Justification : by using laminar air flow , HEPA filter, autoclave	Point : 3 Justification : students will be able to perform the sub culturing and isolation of microorganisms			Point : 2 Justification : by performing subculturing and isolation students can communicate how to isolate microorganisms	Point : 2 Justification : isolation and subculturing methods will serve the students to perform in various pharmaceutical fields
BP307P.3P	Point : 3 Justification : different staining methods like gram staining, negative and simple staining enable the students to differentiate microorganism		Point : 3 Justification : staining techniques used to identify the microorganisms and to detect their viability		Point : 2 Justification : compound and projection microscope are used to differentiate different microorganism		Point : 2 Justification : by performing staining techniques and motility students can differentiate microorganism , an important tool for medical diagnosis	Point : 2 Justification : differentiation of microorganism is an important tool in medical diagnosis for the prescription of antibiotics	Point : 3 Justification : by performing students can communicate the importance of staining and motility techniques students can	Point : 2 Justification : by performing staining and motility student attain the knowledge about microorganism and an inevitable part of pathological studies
BP307P.4P	Point : 3 Justification : microbiological assay of antibiotics provide knowledge about the therapeutic efficiency of antibiotics		Point : 3 Justification : by performing microbiological assay of antibiotics and sterility testing , increase the planning ability of students by culture media preparation and calculation of zone of inhibition		Point : 2 Justification : modern instruments like colony counter, membrane filter assembly are used for sterility testing and assay of antibiotics	Point : 3 Justification : students can perform sterility testing and assay of antibiotics as a group	Point : 3 Justification : microbiological assay of antibiotics and sterility testing of pharmaceutical products is an inevitable part of pharmaceutical industry	Point : 2 Justification : by doing sterility testing of pharmaceuticals and assay of antibiotics , students can contribute knowledge in the medical field	Point : 2 Justification : by doing sterility testing and assay of antibiotics students can share the procedure and interpretation of the results	Point : 2 Justification : by conducting sterility testing the pharmacy students can contribute the efficiency of different antibiotics
BP307P.5P	Point : 3 Justification : bacteriological analysis of water provide the students about the contamination of water			Point : 2 Justification : by doing bacteriological test of water students can analyze different factors that will contaminate water	Point : 3 Justification : by using laminar airflow, colony counter, membrane filtration assembly students can know microbial contamination of water	Point : 2 Justification : students can perform biochemical test and bacteriological analysis of water as a group	Point : 3 Justification : biochemical test for microorganism is an important tool for identification of microorganism. extend of microbiological contamination of water is an important parameter for quality life	Point : 2 Justification : by doing bacteriological analysis of water student can share the knowledge about the purity of water	Point : 2 Justification : students can communicate the knowledge about purity of water	Point : 3 Justification : microbiological analysis of drinking water is an important parameter for improving quality of life
Average Score	3		3	2	2.2	2.66666666666667	2.66666666666667	2	2.2	2.4





# 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	B Pharm
Batch	2021-2025
Semester	3
Subject	Pharmaceutical Engineering –Practical

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	BP308P	Students will be able to operate various Pharmaceutical equipments		Apply	Fels Saju
2	BP308P	Students will be able to analyse and interpret the values obtained from an experiment		Analyze	Fels Saju
3	BP308P	Students will be able to set up atmospheric conditions for a pharmaceutical operation		Apply	Fels Saju
4	BP308P	Students will be able to solve critical issues happening a pharmaceutical process		Apply	Fels Saju
5	BP308P	Students will be able to select suitable equipment based on various process and material related factors		Apply	Fels Saju

Generated at : 17/07/2023 10:37:22







**Nirmala College of Pharmacy**  
Muvattupuzha P.O Ernakulam District Kerala  
Email : info@nirmalacp.org, Phone : 048528



## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha										
Course	B Pharm										
Batch	2021-2025										
Semester	3										
Subject	Pharmaceutical Engineering –Practical										
	PO1: Pharmacy Knowledge	PO1	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:Environ and sustain
BP308P	Point : 3 Justification : students have to operate various equipments		Point : 3 Justification : students will have an operational plan before going into experiment	Point : 3 Justification : analyse equipment related problems	Point : 3 Justification : operate various equipments		Point : 3 Justification : understand the importance of pharmacist in manufacturing premises		Point : 3 Justification : operation of equipment requires communication		
BP308P	Point : 3 Justification : students have to collect and treat results			Point : 3 Justification : data analysis is critical in an experiment							
BP308P	Point : 3 Justification : analysing atmospheric conditions such as humidity is critical for any pharmaceutical production process		Point : 2 Justification : students will be able to plan precautionary measures according to the atmospheric humidity				Point : 3 Justification : can apply the theoretical knowledge in a practical situation				Point : 3 Justification humidity and temperature adversely affect quality of product
BP308P	Point : 3 Justification : students may deal challenges during the experiment					Point : 3 Justification : problems during experiment required leadership qualities to solve that					
BP308P	Point : 3 Justification : many equipments such as ball mill vacuum pump etc are involved in the experiments							Point : 3 Justification : will deliver maximum quality drugs by controlling manufacturing parameters		Point : 3 Justification : society will get maximum quality product	
Average Score	3		2.5	3	3	3	3	3	3	3	3

Generated at : 17/07/2023 10:37:34

---

**2.6.1:**  
**Course Outcomes (COs)**

**Program: B pharm**  
**Batch: 4<sup>th</sup> semester**





# 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	B Pharm
Batch	2020-2024
Semester	4
Subject	Pharmaceutical Organic Chemistry III- Theory

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO1	Discuss at an advanced level, the three-dimensional structure of organic molecules and explain their stereochemical relations.	Understand the knowledge on stereochemical aspects of organic compounds	Understand	Greeshma G Nair
2	CO2	Apply & understand how structural changes influence reaction mechanisms and reactivity of organic molecules & drugs.	Application of organic reactions in the synthesis of medicinal compounds	Apply	Greeshma G Nair
3	CO3	Describe the chemistry of the heterocyclic compounds in terms of molecular orbital theory, aromaticity and reactions including method of preparation and their medicinal importance	Chemistry of important heterocyclic compounds and their synthesis and reactions	Apply	Greeshma G Nair
4	CO4	To be able to run experimental techniques, procedures and safe laboratory practices	Understand the methods of preparation and properties of organic compounds	Understand	Greeshma G Nair
5	CO5	Study the reaction mechanism and synthetic applications of various important chemical reactions & named reactions which are applicable in drug industry	important name reactions, their mechanism and their synthetic importance	Remember	Greeshma G Nair

Generated at : 06/06/2023 11:13:50





# Nirmala College of Pharmacy, Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha									
Course	B Pharm									
Batch	2020-2024									
Semester	4									
Subject	Pharmaceutical Organic Chemistry III- 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
CO1	Point : 3 Justification : Possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy, which emphasis on the basic skeleton of organic molecules which leads to the medicinal activity and applications of molecules in pharmacy field which include social and administrative pharmacy sciences and manufacturing practices in drug industry.	Point : 1 Justification : Able to demonstrate the implementation & planning of synthesizing new molecules in pharmacy field by using the basic knowledge about drug molecules	Point : 3 Justification : It is able to utilize the principles of analytical methods for drug discovery, clearly and critically during daily practice. Able to evaluate and apply informations	Point : 3 Justification : By using the basic knowledge of organic molecules only it is possible to learn, select and apply appropriate methods and procedures, resources and modern pharmacy related computing tools with an understanding of the limitations.	Point : 1 Justification : Can utilize the basic knowledge about molecules to prepare new medicines to facilitate the improvement in health and well being.	Point : 1 Justification : Able to analyze and communicate the professional roles of educators and employers in pharmaceutical industries for the development of medicines.	Point : 1 Justification : Able to apply ethical principles in professional and society contexts.	Point : 1 Justification : Effective communication with professionals of the pharmacy field is possible only with the basic knowledge of drug molecules and their applications.	Point : 1 Justification : Be able to do reasoning by the contextual knowledge of medicines to assess health & safety issues relevant to the professional pharmacy practice.	Point : 2 Justification : able to do the knowl and need sustainabl developm medicines
CO2	Point : 3 Justification : It is able to possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy, including biomedical sciences, pharmaceutical sciences, behavioural, social and administrative pharmacy sciences and manufacturing practices in drug industry and research fields.	Point : 3 Justification : By knowing the structural changes and mechanisms of organic molecules and drugs, it is able to demonstrate effective planning abilities including time management, resource management, delegation skills and organizational skills for the development of new drugs and also able to develop and implement plans and organize work to meet deadlines.	Point : 3 Justification : It is able to find, analyze, evaluate and apply information systematically for the process involved in drug development. It is able to utilize the principles of scientific enquiry, thinking analytically, clearly and critically, while solving problems and making decisions during daily practice.	Point : 3 Justification : By applying basic knowledge on reaction mechanism of organic molecules, it is possible to analyze the target molecule & apply this knowledge in drug design software.	Point : 2 Justification : Preparation of medicines & quality control management is important in marketing a new formulation. It takes a lead role in pharmacy field by using structures & reactions of organic molecules.	Point : 1 Justification : Apply & utilize the skills and tools of chemistry in the profession of pharmacy by correlating with industry & marketing field.	Point : 1 Justification : Able to apply knowledge based on pharmaceutical ethics which is beneficial in the professional identity of a pharmacist by knowing the chemistry behind the formulations	Point : 2 Justification : Communication with patients is very important in field of pharmacy as it correlate with the thorough knowledge of the pharmacist on the pharmacy subjects.	Point : 2 Justification : By knowing the stereochemical reactions of a drug it is able to correlate the pharmacy professional with society.	Point : 2 Justification : to do the r works bas environme pharmacy to sustain profession
CO3	Point : 3 Justification : Possess knowledge on the basic skeleton of organic molecules which leads to the medicinal activity and applications of molecules in pharmacy field	Point : 2 Justification : It is better to plan on various reactive procedures for the preparation of new medicines based on the knowledge of this outcome.	Point : 3 Justification : Acquire knowledge based on the structure of heterocyclic compounds which is beneficial in structural analysis of drug molecules.	Point : 2 Justification : Modern drug design methods can be done only by knowing the basic reaction mechanisms of organic molecules.	Point : 1 Justification : Knowledge based on the structure of heterocyclic compounds is important to take a lead role in research industry	Point : 2 Justification : Identifying the medicinal agents based on structure is important in determining the pharmacological actions which is essential in pharmacy profession.	Point : 1 Justification : Professional ethics is maintained by correlating with pharmacy knowledge in chemical nature of drugs.	Point : 1 Justification : Communication with pharmacy professionals is beneficial in drug industry which is attained only through the knowledge on drug molecules.	Point : 2 Justification : Pharmacist can do anything in drug industry by using knowledge on drug development.	Point : 3 Justification : Knowledge, heterocycl chemistry important discovery the sustain the enviro
CO4	Point : 3 Justification : Acquire	Point : 1 Justification : With this	Point : 1 Justification : Able to				Point : 2 Justification : Correlating	Point : 1 Justification : Able to communicate with	Point : 2 Justification : Development	Point : 3 Justification : minimize t

	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: Environmental and sustainability
	knowledge on safe laboratory practices for the synthesis of medicinally important compounds	outcome, it is able to demonstrate effective planning of lab experiments.	interpret the difficulties involved in synthesis of medicinally important compounds				pharmacy knowledge with ethics.	research sector and drug industry	of best lab practices for synthesis of drugs	products & best methods for synthetic routes
CO5	Point : 3 Justification : It is beneficial to get a detailed knowledge on the reaction mechanism and synthetic applications of various important chemical reactions & named reactions which are applicable in drug industry.	Point : 2 Justification : By knowing the structural changes and mechanisms of organic molecules and drugs, it is able to demonstrate effective planning abilities and organizational skills for the development of new drugs	Point : 3 Justification : Research related studies for drug design can be carried out only by analyzing reaction mechanisms of that particular drugs.	Point : 3 Justification : Modern drug design methods can be done only by knowing the basic reaction mechanisms of organic molecules.	Point : 2 Justification : The basic knowledge about molecules is important in developing a new drug molecule and to carry out its further proceedings to attain the target level in an effective way.	Point : 2 Justification : It is beneficial to get a detailed knowledge on the reaction mechanism and synthetic applications of various important chemical reactions & named reactions which are applicable in drug industry.	Point : 1 Justification : Reactions and mechanisms are the basic cores drug research & development, which indicates pharmacy profession.	Point : 2 Justification : Reactions and mechanisms are important in drug research for good communication	Point : 2 Justification : Able to do reasoning by the contextual knowledge of medicines to assess health & safety issues in medical field	Point : 2 Justification : Reaction mechanism to demonstrate knowledge need for sustainable development medicines
Average Score	3	1.8	2.6	2.75	1.5	1.5	1.2	1.4	1.8	2.4

Generated at : 06/06/2023 11:14:28





# 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	B Pharm
Batch	2020-2024
Semester	4
Subject	Medicinal Chemistry I – Theory

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	BP402T.1	To understand the principles of medicinal chemistry, drug metabolic pathways, adverse effect and therapeutic value of drugs	To understand the drug metabolism pathway and its adverse effect	Understand	Saranya T S
2	BP402T.2	Acquire knowledge about the relationship between the biological activity and Physicochemical properties of therapeutic agents.	To understand the relationship between the biological activity and therapeutic activity of drugs	Understand	Saranya T S
3	BP402T.3	Demonstrate the synthesis of some important class of drugs	To understand the synthesis of some important class of drugs	Understand	Saranya T S
4	BP402T.5	Demonstrate the chemistry, classification, SAR and uses of different classes of drugs with respect to their pharmacological activity.	To understand the chemistry, classification, SAR and uses of different classes of drugs with respect to their pharmacological activity.	Understand	Saranya T S
5	BP402T.4	Utilize the knowledge of the mechanism pathways of different class of medicinal compounds to understand their pharmacological activity	Apply the knowledge of the mechanism pathways of different class of medicinal compounds to understand their pharmacological activity	Apply	Saranya T S

Generated at : 06/06/2023 11:16:11





# Nirmala College of Pharmacy, Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	B Pharm
Batch	2020-2024
Semester	4
Subject	Medicinal Chemistry I – 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
BP402T.1	Point : 3 Justification : Possess knowledge About drug metabolic pathways, adverse effect and therapeutic value of drugs	Point : 2 Justification : Knowledge about the drug metabolic pathways, adverse effect and therapeutic value of drugs are required for Design & discovery of medicinal agents	Point : 3 Justification : Knowledge about the metabolic pathways and factors affecting metabolism are important in analyzing the therapeutic agents.	Point : 2 Justification : Knowledge on the metabolism of drugs is important in drug discovery.	Point : 1 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.
BP402T.2	Point : 3 Justification : Knowledge about relationship between the biological activity and Physicochemical properties of therapeutic agents. .	Point : 2 Justification : Knowledge drug physicochemical properties are essential for proper planning of drug discovery.	Point : 3 Justification : Physicochemical features affect drug action and hence knowledge about these factors are required to analyse the drug design problems.	Point : 3 Justification : To know about the Physicochemical factors are important in drug discovery.	Point : 1 Justification : Can give an overview of drug action and various factors affecting it	Point : 1 Justification : Get knowledge about drug design and factors which affect the pharmacological action.	Point : 1 Justification : Able to apply knowledge based on pharmaceutical ethics which is beneficial in the professional identity of a pharmacist.	Point : 2 Justification : Could effectively communicate about the pharmacological action and various physicochemical factors affecting it.	Point : 2 Justification : The development of new drugs for new diseases will help for the betterment of health care system & society.
BP402T.3	Point : 3 Justification : Acquire knowledge on synthesis of some important class of drugs & 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 : Synthesis steps are helpful in analyzing drug discovery process of different classes of drugs.	Point : 2 Justification : Modern technologies can be used to synthesize new molecules	Point : 2 Justification : Synthesis pathways are useful in the process of drug discovery which leads to the formulation drugs with more advantages.	Point : 2 Justification : Can study the synthesis of various classes of drugs	Point : 1 Justification : Professional ethics is maintained by correlating with pharmacy knowledge in chemical nature of drugs.	Point : 2 Justification : Able to communicate effectively about the synthetic pathways of various classes of drugs.	Point : 2 Justification : Can develop quality formulations for maintaining the health of the society
BP402T.5	Point : 3 Justification : Knowledge about the important classes of medicinal compounds and drugs including their SAR, therapeutic uses, and 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, therapeutic uses, and 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.
BP402T.4	Point : 3 Justification : Get the knowledge about the mechanism pathways of different class of medicinal compounds to understand their pharmacological activity.	Point : 2 Justification : For determining the effect of chemical structure of a drug on its pharmacokinetic properties proper delegation skills & planning is required.	Point : 3 Justification : Knowledge about the mechanism of action and target tissues of each class of drugs are essential to produce new formulation.	Point : 2 Justification : Modern tools can be used to find out mechanisms of drug action	Point : 1 Justification : Knowledge on the mechanism of action of a compound & its pharmacokinetic properties can make an analyst for proper discovery of drugs.	Point : 2 Justification : Can explain mechanism of action of a drug and its pharmacokinetic properties.	Point : 1 Justification : Correlating pharmacy knowledge with ethics.	Point : 2 Justification : Could explain the mechanism of action of each class of drug and communicate with research sector and drug industry.	Point : 2 Justification : Pharmacokinetic properties of a drug is important in formulation of medicines.
Average Score	3	2.2	2.6	2	1.2	1.8	1	2	2





# 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	B Pharm
Batch	2020-2024
Semester	4
Subject	Physical Pharmaceutics II – Theory

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO.1	Know the principles of chemical kinetics & to use them in assigning expiry date for Formulation and to know how various factors influence the decomposition of medicinal agents and also understand the principles involved in stabilization of drugs		Understand	Gifty M Jojo
2	CO.2	Understand the applications of the knowledge of rheology in various steps of product formulation and development on industrial scale		Understand	Gifty M Jojo
3	CO.3	understand the different types of colloids which the drugs form and the properties of such colloids		Understand	Gifty M Jojo
4	CO.4	Learn regarding the classification, formulation and evaluation of coarse dispersions like suspensions and emulsions.		Understand	Gifty M Jojo
5	CO.5	Learn about the different types of surfactants and their role in pharmacy		Apply	Gifty M Jojo

Generated at : 06/06/2023 11:18:04







# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha									
Course	B Pharm									
Batch	2020-2024									
Semester	4									
Subject	Physical Pharmaceutics II – 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: Professionalism
CO.1	Point : 3 Justification : Teaches about the stability problems of drugs and their preventive measures	Point : 2 Justification : After learning the stability problems and its preventive measures the student able to plan the different stabilization methods for dosage forms	Point : 2 Justification : Learning about stability of drugs can minimize the stability problems encountered during the shelf life of drugs by taking right preventive measures.	Point : 2 Justification : Calorimetric and spectrophotometric analysis	Point : 2 Justification : Studying about the stability of formulations helps to teach , and convince the people and can become a leader	Point : 2 Justification : Provides them professional knowledge on the stability aspects of different dosage forms	Point : 3 Justification : This knowledge helps to work with ethical point of view since stability problems can affect the health of consuming patient	Point : 2 Justification : Practical knowledge on stability and drug kinetics can make strong presentations	Point : 1 Justification : A person conducting the stability study must be aware about the importance of shelf life and its impact on the safety of consumers	
CO.2	Point : 3 Justification : Teaches rheology of solid and liquid dosage forms	Point : 3 Justification : After learning it the student get the concept of flow properties of solid and liquid dosage forms and can plan the selection of containers and requirements for the addition of flow promoters.	Point : 3 Justification : Can analyze problems such as poor flow during the time of manufacture, poor spreadability, poor flow from the containers	Point : 2 Justification : Tablet punching machine	Point : 2 Justification : Learning rheology will help a student to debate and convince production unit in charges in pharmaceutical industries	Point : 2 Justification : Provides them professional role in discussion with the production in charges in pharmaceutical industry		Point : 2 Justification : This practical knowledge could able to teach students more effectively	Point : 2 Justification : Flow properties can affect the filling of formulation in containers ,poor flow property can leads to improper filling of containers that cause variations within the batch and finally dose variations that finally affects the customers compliance.	
CO.3	Point : 3 Justification : Teaches about types of colloids and their applications in pharmacy	Point : 3 Justification : Students can plan about the selection of a stable colloidal dispersion and study the influence on stability,taste and physical and chemical properties	Point : 3 Justification : Learning about various preparation techniques give the skill to detect the stability problems of drugs in both free form and colloidal form	Point : 3 Justification : Colloid mill, electrophoretic cell, electron microscope	Point : 2 Justification : Learning on effect of electrolytes on the stability of colloids makes a student in detecting the stability enhancement of stabilization some drug by electrostatic or steric stabilization technique	Point : 3 Justification : Provides them professional role in discussion with research scientists in R & D of pharmaceutical industries		Point : 2 Justification : Able to communicate to people regarding its applications in everyday life phenomena like medicines,food stuffs,purification of water ,sewage disposal etc	Point : 1 Justification : Helps to develop new drug formulations for the society based on improvement in stability and drug dispersibility , which inturn affects the bioavailability of drugs in patients. Colloidal sols are also employed in taste masking thereby increasing patient compliance and acceptance. Colloids also have applications in the form of medicines. Colloidal medicines are competitively more	

	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: Professionalism
									effective as they are easily absorbed by the body. That is why many medicines are emulsion. Some major antibiotics like penicillin and streptomycin are injected in the body in the form of colloidal sol so that they would be absorbed by the body easily.	
CO.4	Point : 3 Justification : Teaches about colloidal dispersions and coarse dispersions	Point : 3 Justification : Students can plan about the techniques, formulation parameters and stability of disperse systems	Point : 3 Justification : The learning on disperse systems make a student to minimize the physical, chemical and microbial stability problems of a disperse system during the time of its manufacture.	Point : 3 Justification : Colloid mill, silverson emulsifier, electrophoresis cell	Point : 2 Justification : Studying of disperse systems make the students to take decisions regarding the selection of right ingredients, manufacturing equipments and proper packing and storage.	Point : 3 Justification : Provides them professional role in convention with preformulation scientists in industry		Point : 2 Justification : The knowledge about disperse systems will help to provide better dosage form development in small scale or large scale industries.	Point : 1 Justification : The knowledge about disperse systems will help to provide better dosage form development in small scale or large scale industries	
CO.5	Point : 3 Justification : Teaches the classification of surfactants and their pharmaceutical applications	Point : 2 Justification : Students can plan about selecting the right type of emulsifier based on their HLB values and applications for dosage form preparations	Point : 2 Justification : Can analyze problems encountered by the selection of wrong surfactant as stabilizing agents for emulsions and suspensions namely breaking of emulsions and caking of suspensions.		Point : 2 Justification : Studying on surfactants and their mechanism of action helps one to authenticate the selection of right emulsifier/surfactant and the problem solving motivate and encourage the students	Point : 2 Justification : Provides them professional role in convulsion formula developing scientists		Point : 2	Point : 3 Justification : Micellar solubilization of poorly water soluble drugs enhances their bioavailability in patients	
Average Score	3	2.6	2.6	2.5	2	2.4	3	2	1.6	

Generated at : 06/06/2023 11:18:42





# 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	B Pharm
Batch	2020-2024
Semester	4
Subject	Pharmacology I – Theory

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO303.1	Understand about the basic concepts and principles of pharmacology like routes of drug administration, pharmacokinetics, pharmacodynamics, drug allergy adverse drug reactions and drug interactions.	Basic concepts of pharmacology	Understand	KARTHIKEYAN M
2	CO303.2	Explain how drugs, toxins, chemicals act in our body at organ system/sub cellular/macromolecular levels. (i.e., mechanisms of action)	Mechanisms of drug action	Understand	KARTHIKEYAN M
3	CO 303.3	Know the importance of selection of the right drug through concepts like essential drug lists, pharmacogenetics, chronopharmacology, receptor concept	Receptors involved in drug action	Understand	Elayath Parvathy Murali
4	CO 303.4	Explain the entire pharmacological aspects of drugs (such as classifications, mechanisms of action, adverse drug reactions, uses etc) acting on autonomic nervous system, CNS	Drugs acting on ANS	Apply	Elayath Parvathy Murali
5	CO 303.5	Use the knowledge gained through understanding of pharmacology of drugs and apply it in the dispensing of drugs and thus help in the treatment of various diseases affecting the body systems and thus improve the general health of the community. (Pharmacotherapeutics)	Pharmacotherapeutics	Apply	Elayath Parvathy Murali



# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha								
Course	B Pharm								
Batch	2020-2024								
Semester	4								
Subject	Pharmacology I – 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
CO303.1	Point : 3 Justification : Gives the basics about the core area of general pharmacology	Point : 1 Justification : General pharmacology is the building block for study of individual drugs	Point : 1 Justification : Systematic study of each area is needed for completion of any study	Point : 1 Justification : Use of charts and models helps in the study of general pharmacology		Point : 1 Justification : Core points help to understand the subject of pharmacology and its uniqueness	Point : 1 Justification : Moral areas of drug use is highlighted	Point : 1 Justification : Proper and regular communications decreases need of regular backup	Point : 1 Justification : Pk & Pd helps to understand drug use and behaviour
CO303.2	Point : 3 Justification : Mechanism of actions defines a drug action	Point : 1 Justification : Developing drugs with proper actions requires understanding along with planning	Point : 1 Justification : Analyzing & identifying drug targets is the key in developing new drugs	Point : 2 Justification : Study through softwares and enzyme receptor models is essential		Point : 1 Justification : Study of molecular mechanisms differentiates pharmacists from all others	Point : 1 Justification : Ethical values should be considered while designing drugs	Point : 1 Justification : Documentation and tabulation is essential	Point : 1 Justification : Understanding drug actions simplifies drug knowledge
CO 303.3	Point : 3 Justification : Rational drug use is the best way to ensure the optimal and correct use of drugs	Point : 2 Justification : EDLs, P treatment etc can be planned and executed properly	Point : 2 Justification : Methods to improve patient compliance can be developed	Point : 2 Justification : Patient counseling through DICs, preparing EDLs helps improve compliance	Point : 2 Justification : Proactive approach is needed to solve problems efficiently	Point : 2 Justification : DICs and Counseling pharmacists can be highlighted	Point : 3 Justification : Ethical considerations are paramount in Rational drug use	Point : 2 Justification : Essential communication, verbal interactions helps increase compliance	Point : 3 Justification : Tailor-made medicines maybe the best gift to mankind
CO 303.4	Point : 3 Justification : Entire Pharmacology of a single drug among lakhs of drugs is studied	Point : 1 Justification : Dedicated learning through proper planning is the key to improve memorization	Point : 2 Justification : Deciding which drug, what dose and where to apply requires diagnosis and analysis	Point : 2 Justification : Newer drug databases, ADR data maybe important to decrease drug toxicity	Point : 1 Justification : Helps to better understand proper use of drugs and drug counseling	Point : 2 Justification : Pharmacist is the best authority on pharmacology and drugs	Point : 1 Justification : Medical field always requires consideration for ethical values	Point : 2 Justification : Effective communication and recording documents helps in better patient care	Point : 2 Justification : Better knowledge of drugs and proper dispensing of drugs improves patient compliance
CO 303.5	Point : 3 Justification : Pharmacotherapeutics is the art of treating diseases with the knowledge of pharmacology	Point : 3 Justification : Planning a dose schedule and counseling guidelines is essential in therapeutics	Point : 3 Justification : Patient counseling and clearing drug queries is a major part of analyzing the treatment	Point : 2 Justification : Drug information can be obtained and disseminated through modern softwares	Point : 1 Justification : Patient counseling and responding to drug queries requires patience and being efficient	Point : 3 Justification : The importance and uses of Drug Information Centers (DIC) can be highlighted	Point : 3 Justification : Therapeutics requires consideration for patient ethics	Point : 2 Justification : Effective communication and recording of data improves patient counseling	Point : 3 Justification : Improved and the correct sharing of drug knowledge benefits the whole society
Average Score	3	1.6	1.8	1.8	1.33333333333333	1.8	1.8	1.6	2

Generated at : 06/06/2023 11:24:24



**Nirmala Coll**

Muvattupuzha P.O Erna

Email : info@nirmalacp



**Muvattupuzha**

n:686661

## Course Outcome

Institute	Nirmala College of Pharmacy,Muvattupuzha
Course	B Pharm
Batch	2020-2024
Semester	4
Subject	Pharmacognosy and Phytochemistry I– Theory

Sl.No	CO Code	Corse Outcome	Description	Bloom Level	Created_by
1	BP405T 1	know the techniques in the cultivation and production of crude drugs		Understand	Lins Mary Joy
2	BP405 T 2	know the crude drugs, their uses and chemical nature		Apply	Lins Mary Joy
3	BP405 T 3	Know the other evaluation techniques for the herbal drugs		Apply	Lins Mary Joy
4	BP405 T 4	carry out the microscopic and morphological evaluation of crude drugs		Apply	Lins Mary Joy
5	BP405 T 5	Role of Pharmacognosy in allopathy and traditional systems of medicine and an introduction to pharmacognosy.		Understand	Lins Mary Joy

Generated at : 06/06/2023 11:26:32





# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha									
Course	B Pharm									
Batch	2020-2024									
Semester	4									
Subject	Pharmacognosy and Phytochemistry I– 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
BP405T 1	Point : 3 Justification : Knowledge of Crude drugs in every aspect	Point : 3 Justification : Helps in planning about designing formulations based on herbal drugs.	Point : 3 Justification : Any inconsistency in quality of crude drugs can be judged properly and be solved by proposing remedial measures	Point : 1 Justification : Knowledge about marker compounds can be made use in separation procedures like chromatography but operation of sophisticated instruments require exposure and skills.	Point : 1 Justification : Sound knowledge of crude drugs helpful in guiding people in herbal industry. But may not become useful in specific industries.	Point : 3 Justification : Knowledge of crude drugs creates an identity in herbal industry	Point : 2 Justification : Knowledge of crude drugs useful in identifying adulterants. Exposure in plant based industries are required.	Point : 2 Justification : Preparation of records of parameters for identification of crude drugs helpful in developing presentation skills.	Point : 3 Justification : Knowledge of crude drugs can be imparted to society as the use of plant based products	Point : 3 Justification : Study of parameters of cultivation and conservation of plants.
BP405T 2	Point : 1 Justification : According to family, can assess its action	Point : 1 Justification : Plan according to characters found in plants	Point : 2 Justification : After a series of description plant can be confined	Point : 1 Justification : Can apply proper methods for description	Point : 1 Justification : Can share the knowledge about various families	Point : 1 Justification : Understand their families and thus uses	Point : 1 Justification : Ethical judgement to be taken	Point : 2 Justification : Write systematic reports		
BP405T 3	Point : 3 Justification : can free off the drugs from adulteration	Point : 2 Justification : Can plan about which all evaluation methods can be used	Point : 3 Justification : Results of evaluation methods are analysed	Point : 3 Justification : Latest techniques can be used for evaluation	Point : 1 Justification : Can improve health and well being by avoiding adulterants	Point : 2 Justification : Can evaluate the presence of adulterants	Point : 2 Justification : Ethical evaluation criteria should be made	Point : 1 Justification : Educate people about adulterants in drugs	Point : 1 Justification : Can convey knowledge about adulterants in drugs	
BP405T 4	Point : 3 Justification : Knowledge of proteins and enzymes	Point : 3 Justification : Planning of experiments based on properties of enzymes.	Point : 3 Justification : Analysing reasons for denaturation of proteins and enzymes.	Point : 1 Justification : Lesser knowledge in biotechnological industrial practices	Point : 1 Justification : Cannot dominate much in biotechnology based industries because of lack of skills in that area.	Point : 3 Justification : Application of pharmaceutical principles in industry.	Point : 2 Justification : Irrelevant usage of biotechnological products can be reduced	Point : 2 Justification : Can give instructions regarding formulation of biotechnological products.	Point : 3 Justification : Can give directions for effective usage of plant based enzyme or protein	Point : 3 Justification : Knowledge about the isolation of enzymes helps in minimizing the solvents used for extraction
BP405T 5	Point : 3 Justification : Knowledge of basic principles of alternative system.	Point : 3 Justification : Can design new type of formulations in indigenous system based industries.	Point : 3 Justification : Analyse deviations in manufacturing of traditional formulations in the modern industries which will reduce the efficacy of the same.	Point : 1 Justification : Modern tools in phytochemistry like HPLC or HPTLC can be handled only after suitable training.	Point : 3 Justification : Can act as a link between chemists and practitioners of alternative systems.	Point : 2 Justification : Offers professional identity by basic knowledge of drugs in allopathy as well as indigenous systems	Point : 2 Justification : The modern processing technology can cause less efficacy .	Point : 2 Justification : Can give proper guidance in developing formulations based on indigenous systems of medicine to entrepreneurs	Point : 3 Justification : Can educate society about the possibilities of indigenous drugs.	Point : 3 Justification : By knowledge of traditional formulation techniques the usage of extractive by toxic solvents can be minimized
Average Score	2.6	2.4	2.8	1.4	1.4	2.2	1.8	1.8	2.5	3



# 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	B Pharm
Batch	2020-2024
Semester	5
Subject	Formulative Pharmacy – Practical

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	BP506P.1P	Attain basic understanding in the area of preformulation study, manufacturing, packaging and labeling of tablets.		Apply	Melody Grace Baby
2	BP506P.2P	Understand the requirements of parenteral product preparation, packaging and labeling		Apply	Melody Grace Baby
3	BP506P.3P	Understand processes involved in the preparation and evaluation of syrups		Apply	Melody Grace Baby
4	BP506P.4P	Develop skill in the manufacturing and packaging of creams		Apply	Melody Grace Baby
5	BP506P.5P	Learn the evaluation studies of different formulations and packaging materials.		Apply	Melody Grace Baby





# Nirmala College of Pharmacy, Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha					
Course	B Pharm					
Batch	2020-2024					
Semester	5					
Subject	Formulative Pharmacy – Practical					
	PO1: Pharmacy Knowledge	PO1	PO2: Planning Abilities	PO3:Problem Analysis	PO4:Modern tool usage	PO5: Leadership
BP506P,1P	Point : 3 Justification : Preformulationstudies, formulationtechnique, evaluationmethodsprovide thestudents withgoodpharmacyknowledge		Point : 2 Justification : Preparationof soliddosageforms withtherequiredfacilities inspecifiedtime candevlopgoodplanningability.	Point : 2 Justification : Duringmanufacturing, students willbe able toanalyse andsolve theproblems theyface	Point : 3 Justification : During tabletpunching and Q.Ctests studentslearn moderntools	Point : 1 Justification Groupexpect help thestudent todevelop
BP506P,2P	Point : 3 Justification : Preparation, filling, sealingandsterilizationtechniquesinvolved in thepreparation ofdifferentsterileproductsprovide thestudents withgoodpharmacyknowledge.		Point : 2 Justification : Formulationof sterileproductswith therequiredfacilities inspecifiedtime candevlopgoodplanni	Point : 2 Justification : Duringmanufacturing, students willbe able toanalyse andsolve theproblems theyface	Point : 2 Justification : Duringfilling, sealing andQ.C tests ofsterile productsstudents comeacross withinstruments.	Point : 1 Justification Groupexpect help thestudent todevelop
BP506P,3P	Point : 3 Justification : Formulationtechnique,packing andlabeling of syrups providethe studentswith goodpharmacyknowledge.		Point : 2 Justification : Preparationof syrupswith therequiredfacilities inspecifiedtime candevlopgoodplanningability.	Point : 1 Justification : Duringmanufacturing, students willbe able toanalyse andsolve theproblems theyface.		Point : 1 Justification Groupexpect help thestudent todevelop
BP506P,4P	Point : 3 Justification : Formulationtechnique,packing andlabeling ofcreamsprovide thestudents withgoodpharmacyknowledge		Point : 2 Justification : Preparationof creamswith therequiredfacilities inspecifiedtime candevlopgoodplanningability	Point : 2 Justification : Duringmanufacturing, students willbe able toanalyse andsolve theproblems theyface.		Point : 1 Justification Groupexpect help thestudent todevelop
BP506P,5P	Point : 3 Justification : Evaluationstudies ofsolid dosageforms,parenteralproducts andpackagingmaterialsprovide thestudents withgoodpharmacyknowledge.		Point : 2 Justification : Conductingtheevaluationstudies withtherequiredfacilities inspecifiedtime candevlopgoodplanningability	Point : 2 Justification : Whileperformingtests studentswill be able toanalyse andsolve theproblems theyface	Point : 3 Justification : While evaluatingdifferent dosageforms,machineries areinvolved.	Point : 1 Justification Groupexpect help thestudent todevelop
Average Score	3		2	1.8	2.66666666666667	1





# 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	B Pharm
Batch	2020-2024
Semester	4
Subject	Physical Pharmaceutics II – Practical

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	407P.1	Determination of surface tension of given liquids by drop count and drop weight method		Analyze	Gifty M Jojo
2	407P.2	Determination of HLB number of a surfactant by saponification method		Analyze	Gifty M Jojo
3	407P.3	Determination of critical micellar concentration of surfactants		Analyze	Gifty M Jojo
4	407.4	Determination of viscosity of liquid using Ostwald's viscometer		Analyze	Gifty M Jojo
5	4BP07.5	Determination sedimentation volume with effect of different suspending agent		Analyze	Gifty M Jojo
6	BP407.6	Determination of viscosity of semisolid by using Brookfield viscometer		Analyze	Gifty M Jojo
7	BP407.7	Determination of reaction rate constant first order.		Analyze	Gifty M Jojo
8	BP407.7	Determination of reaction rate constant second order		Analyze	Gifty M Jojo
9	BP407.8	Accelerated stability studies		Analyze	Gifty M Jojo





# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute		Nirmala College of Pharmacy,Muvattupuzha										
Course		B Pharm										
Batch		2020-2024										
Semester		4										
Subject		Physical Pharmaceutics II – Practical										
	PO1: Pharmacy Knowledge	PO1	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: Professionalism
407P.1	Point : 5 Justification : students learn how to analyse the surface tension of given sample				Point : 2 Justification : students learns the handling of stalagmometer							
407P.2	Point : 5 Justification : Students learn how to determine the HLB values.		Point : 3 Justification : students planning ability also increases as they plan each step of the experiment	Point : 4 Justification : students problem-solving capacity is improved by overcoming each problem that may come up as part of the experiment.	Point : 3 Justification : learn the handling of condensers							
407P.3	Point : 5 Justification : students learn thdetermination of CMC and its significance in dosage forms		Point : 3 Justification : students planning ability also increases as they plan each step of the experiment	Point : 4 Justification : students problem-solving capacity is improved by overcoming each problem that may come up as part of the experiment.								
407.4	Point : 5 Justification : students learn the determination of viscosity and its importance in various dosage forms		Point : 4 Justification : students planning ability also increases as they plan each step of the experiment	Point : 4 Justification : students problem-solving capacity is improved by overcoming each problem that may come up as part of the experiment.	Point : 4 Justification : students learn the handling of ostward's viscometer							
4BP07.5	Point : 5 Justification : students learn to analyze the stability of suspension with respect to suspending agent		Point : 4 Justification : students planning ability also increases as they plan each step of the experiment	Point : 4 Justification : students problem-solving capacity is improved by overcoming each problem that may come up as part of the experiment.								
BP407.6	Point : 5 Justification : students learn the		Point : 4 Justification : students planning	Point : 4 Justification : students problem-	Point : 4 Justification : handling of							

	PO1: Pharmacy Knowledge	PO1	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	Pt k
	Determination of viscosity of semisolid by using Brookfield viscometer		ability also increases as they plan each step of the experiment	solving capacity is improved by overcoming each problem that may come up as part of the experiment.	Brookfield viscometer							
BP407.7	Point : 5 Justification : students learn the Determination of reaction rate constant first order.		Point : 4 Justification : students planning ability also increases as they plan each step of the experiment	Point : 4 Justification : students problem-solving capacity is improved by overcoming each problem that may come up as part of the experiment.								
BP407.7	Point : 5 Justification : students learn the Determination of reaction rate constant second order		Point : 4 Justification : students planning ability also increases as they plan each step of the experiment	Point : 4 Justification : students problem-solving capacity is improved by overcoming each problem that may come up as part of the experiment.								
BP407.8	Point : 5 Justification : students learn the concept of accelerated stability studies		Point : 4 Justification : students planning ability also increases as they plan each step of the experiment	Point : 4 Justification : students problem-solving capacity is improved by overcoming each problem that may come up as part of the experiment.	Point : 4 Justification : handling of stability chamber							
Average Score	5		3.75	4	3.4							

Generated at : 28/06/2023 14:34:55





# 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	B Pharm
Batch	2020-2024
Semester	4
Subject	Pharmacology I – Practical

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	C310.1	Understand about the basic instruments used in experimental pharmacology and their assembling and uses	basic instruments used in experimental pharmacology	Remember	Elayath Parvathy Murali
2	C310.2	Know about the commonly used laboratory animals and how to maintain them. They also learn about the routes of drug administration in experimental animals as well as how to collect blood from animals used proper methods.	Common lab animals, routes of administration and collection of blood	Understand	Elayath Parvathy Murali
3	C310.3	Learn and understand the common experiments performed in laboratory rats, frogs, rabbits etc and the step by step procedures of conducting the experiments using computer softwares.	Software based simulating experiments	Apply	Elayath Parvathy Murali
4	C310.4	Integrate and utilize the knowledge gained in the theory course by applying it in the practical sessions using various experiments on isolated tissue experiments. (chicken ileum)	Invitro experiments	Apply	Elayath Parvathy Murali
5	C310.5	Use basic formulas and methods in experimental pharmacology and perform dose calculation experiments.	Dose calculation	Analyze	Elayath Parvathy Murali

Generated at : 28/06/2023 14:46:21





# Nirmala College of Pharmacy, Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute			Nirmala College of Pharmacy,Muvattupuzha									
Course			B Pharm									
Batch			2020-2024									
Semester			4									
Subject			Pharmacology I – Practical									
	PO1: Pharmacy Knowledge	PO1	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	
C310.1	Point : 3 Justification : Gives idea about various instruments used in experimental pharmacology		Point : 1 Justification : Assembling the equipments requires planning and execution	Point : 1 Justification : Selecting the right equipments for each experiment requires assessing the problem	Point : 2 Justification : Newer instruments and models provide better analysis		Point : 1 Justification : Study of bioassays helps in practical understanding of the mechanisms of drug action		Point : 1 Justification : Documentation of recordings is important for success of the study	Point : 1 Justification : Drug development through bioassays & animal studies helps in developing new drugs		P Ju : : bi ph w dr do
C310.2	Point : 3 Justification : Laboratory animal studies are an important part of preclinical testing		Point : 2 Justification : Laboratory animal studies are an important part of preclinical testing	Point : 2 Justification : Use of right species of animal is critical for study success	Point : 2 Justification : Study through modern screening techniques and new equipments is essential to decrease animal use	Point : 1 Justification : Following 3Rs correctly helps decrease animal use	Point : 2 Justification : Study of different screening instruments helps to increase specialty in a subject	Point : 3 Justification : Ethical values should be considered while designing animal studies	Point : 2 Justification : Documentation and tabulation is essential during recording raw data for analysis later	Point : 1 Justification : Modern screening techniques decreases repetition and wastage of animals	Point : 2 Justification : Future medicines rely on the safety of animal studies	P Ju : : up so pr an m he re an
C310.3	Point : 3 Justification : Helps to study different types of animal experiments both invitro & invivo		Point : 2 Justification : Proper planning of the animal studies helps reduce animal wastage	Point : 2 Justification : Helps to answer which screening technique is best for which animal/disease	Point : 2 Justification : Modern techniques helps decrease animal use compared to old methods	Point : 1 Justification : Choosing to reduce animal use maybe a bold decision	Point : 2 Justification : Can becoming master of a particular screening technique and animal study	Point : 2 Justification : Ethical considerations are paramount in the study of laboratory animals	Point : 2 Justification : Essential communication and proactive ideas reduces animal use	Point : 2 Justification : Animal screening methods maybe the only safe way into clinical trials	Point : 2 Justification : Important for the reduction and reusability of animals	P Ju : : te an so te en ev
C310.4	Point : 3 Justification : Understand the action of drugs through practicals and simple experiments		Point : 2 Justification : Planning of the experiment correctly helps to complete it in time	Point : 2 Justification : Understanding the principle and procedure of the study helps to conduct the experiment better	Point : 2 Justification : Newer organ baths and instruments helps to reduce study duration	Point : 1 Justification : Group experiments may require a head for better coordination	Point : 2 Justification : Animal studies and bioassays are characteristic and main experiments in pharmacology	Point : 2 Justification : Reducing the discomfort to animals helps maintain ethics in animal studies	Point : 2 Justification : Group experiments can be performed better with proper communication	Point : 1 Justification : Newer study techniques benefits future populations	Point : 1 Justification : Helps to develop medicines for current and future generations	P Ju : : an st cr es sa ef dr
C310.5	Point : 3 Justification : Dose calculations are an important part of any animal study		Point : 3 Justification : Calculating the dose requires prior planning and method development	Point : 3 Justification : Dose calculations in animals have to be extrapolated to humans later	Point : 2 Justification : Dose calculation studies can be computerized to make it faster and efficient		Point : 2 Justification : Dose studies establishes the role of a biostatistician	Point : 1 Justification : Dose calculations should be proper and correct to avoid manipulation of data	Point : 2 Justification : Proper understanding between researchers decreases calculation errors	Point : 2 Justification : Proper dose calculations improves animal studies and creates better research output for all		P Ju : : ca he up fr to do
Average Score	3		2	2	2	1	1.8	2	1.8	1.4	1.66666666666667	2.0

Generated at : 28/06/2023 14:46:37





**Nirmala Colleg**

Muvattupuzha P.O Ernakul

Email : info@nirmalacp.org



**Muvattupuzha**

661

## Course Outcome

Institute	Nirmala College of Pharmacy,Muvattupuzha
Course	B Pharm
Batch	2020-2024
Semester	4
Subject	Pharmacognosy and Phytochemistry I – Practical

Sl.No	CO Code	Corse Outcome	Description	Bloom Level	Created_by
1	BP409 P 1	Identify the primary metabolites present in unorganized crude drugs by performing various chemical test.	EVALUATION OF CRUDE DRUGS BY CHEMICAL METHODS	Evaluate	Lins Mary Joy
2	BP409 P 2	Confirm the identity and purity of the crude leaf drugs by determining the leaf constants.	QUANTITATIVE MICROSCOPICAL EVALUATION	Evaluate	Lins Mary Joy
3	BP409 P 3	Evaluate crude drugs by quantitative microscopical methods like linear measurments and lycopodium spore method.	QUANTITATIVE MICROSCOPICAL EVALUATION	Evaluate	Lins Mary Joy
4	BP409P 4	knowledge about active constituents from crude drug/Evatulate crude drugs by determining physical evaluation methods like ash & extractive value.	PHYSICAL METHOD OF EVALUATION	Evaluate	Lins Mary Joy
5	BP409P 5	Determine the purity of crude drugs containing saponins and mucilage by various methods of evaluation like foaming index and swelling index	EVALUATION METHOD	Evaluate	Lins Mary Joy

Generated at : 28/06/2023 14:46:59



# Nirmala College of Pharmacy, Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute			Nirmala College of Pharmacy,Muvattupuzha								
Course			B Pharm								
Batch			2020-2024								
Semester			4								
Subject			Pharmacognosy and Phytochemistry I – Practical								
	PO1: Pharmacy Knowledge	PO1	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:Environme and sustainabili
BP409 P 1	Point : 3 Justification : Explain various primary metabolities present in unorganized crude drug and their evaluation.		Point : 3 Justification : Plans the way to identify primary metabolities in drugs	Point : 3 Justification : Analyse the crude drug	Point : 2 Justification : Latest tools can be used	Point : 3 Justification : Taking a lead in identification	Point : 3 Justification : Identify the drug	Point : 2 Justification : Considering ethics towards earth	Point : 3 Justification : Systematic reporting	Point : 3 Justification : Can convey knowledge about adulterants in drugs	Point : 3 Justification : Impact on environmental context
BP409 P 2	Point : 3 Justification : Giv idea about leafconstants and their determination for evaluation of leaf drugs.		Point : 3 Justification : Planning and analysing characters	Point : 3 Justification : Analysing characters of various leaf drugs	Point : 2 Justification : Latest tools can be used	Point : 3 Justification : Analysing and determining the values	Point : 3 Justification : Assess the use	Point : 3 Justification : Considering ethics towards reporting values	Point : 3 Justification : Clear reports	Point : 3 Justification : Can convey knowledge about identity/adulterants in drugs	Point : 3 Justification : Impact on environmental context
BP409 P 3	Point : 3 Justification : Gives idea about the various tissues present in crude drugs and the significance of their measurements in the evaluation of crude drugs.		Point : 3 Justification : Planning of methods	Point : 3 Justification : Analysing which method is good yielding	Point : 1 Justification : Modern techniques are used	Point : 2 Justification : Cretive thinking to implement new methods	Point : 2 Justification : Can determine the purity of drug	Point : 3 Justification : Considering ethics towards evaluation	Point : 2 Justification : Communicate with society the significance of method.	Point : 3 Justification : Motivates common people	Point : 3 Justification : Impact on environmental context
BP409P 4	Point : 3 Justification : Can evaluate the crude drugs by determining their ash and extractive values		Point : 2 Justification : Planning about determination of ash & extractive value.	Point : 2 Justification : Analysing procedure, solvents and apparatus used	Point : 1 Justification : Latest tools can be used	Point : 1 Justification : Flexibility skills to try new techniques	Point : 2 Justification : Can determine quality.	Point : 2 Justification : Ethical evaluation criteria	Point : 2 Justification : Systematic procedure and clear reports	Point : 2 Justification : Motivate for using herbal drugs	Point : 2 Justification : Impact on environmental context
BP409P 5	Point : 3 Justification : To whether the crude drugs containing saponins and mucilage by physical methods		Point : 3 Justification : Planning evaluation method	Point : 3 Justification : Analyse the results of evaluation	Point : 2 Justification : New parameters can be assessed	Point : 2 Justification : Motivating about aduletrants	Point : 3 Justification : Evaluate adulterants present	Point : 2 Justification : Ethical evaluation criteria	Point : 3 Justification : systematic methods	Point : 3 Justification : Can convey knowledge about adulterants in drugs	Point : 3 Justification : Impact on environmental context
Average Score	3		2.8	2.8	1.6	2.2	2.6	2.4	2.6	2.8	2.8

Generated at : 28/06/2023 14:47:12



---

**2.6.1:**  
**Course Outcomes (COs)**

**Program: B pharm**  
**Batch: 5<sup>th</sup> semester**







# 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	B Pharm
Batch	2020-2024
Semester	5
Subject	Formulative Pharmacy– Theory

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	BP 502 T 1	Gain knowledge about the preformulation studies of pharmaceuticals	unit I	Understand	Gifty M Jojo
2	BP 502 T 2	Formulation, methods and equipments for manufacture and evaluation of different conventional dosage forms	UNIT II AND III	Apply	Gifty M Jojo
3	BP 502 T 3	Attain the understanding of formulation and manufacture of parenteral dosage forms	UNIT IV	Understand	Gifty M Jojo
4	BP 502 T 4	Learn about the packaging materials used in pharmaceutical industries	UNIT 5	Understand	Gifty M Jojo
5	BP 502 T 5	undersatand the basic principles of cosmetic science	UNIT 5	Understand	Gifty M Jojo

Generated at : 06/06/2023 11:29:15





# Nirmala College of Pharmacy, Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha									
Course	B Pharm									
Batch	2020-2024									
Semester	5									
Subject	Formulative Pharmacy– 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
BP 502 T 1	Point : 5 Justification : Gain knowledge about the preformulation studies of pharmaceuticals		Point : 4 Justification : enable the students to analyze the properties of drugs and select appropriate dosage form							
BP 502 T 2	Point : 5 Justification : Gain knowledge on Formulation, methods and equipments for manufacture and evaluation of different conventional dosage forms			Point : 3 Justification : Learn the use of various equipment used in evaluation of dosageforms	Point : 3 Justification : knowledge on formulation aspects and handling of equipments improve the work ability and confidence of industrial pharmacist					
BP 502 T 3	Point : 5 Justification : gain knowledge on formulation and evaluation of parenterals			Point : 2 Justification : Learn the use of various equipment used in evaluation of dosageforms	Point : 3 Justification : knowledge on formulation aspects and handling of equipments improve the work ability and confidence of industrial pharmacist					
BP 502 T 4	Point : 5 Justification : Learn about the packaging materials used in pharmaceutical industries									
BP 502 T 5	Point : 5 Justification : understand the basic principles of cosmetic science									
Average Score	5		4	2.5	3					

Generated at : 06/06/2023 11:29:56



# 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	B Pharm
Batch	2019-2023
Semester	5
Subject	Medicinal Chemistry II – Theory

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	BP501T.1	To understand the chemistry of drugs with respect to their pharmacological activity		Understand	Manu Jose
2	BP501T.2	Acquire knowledge about the relationship between the biological activity and Physicochemical properties of therapeutic agents.		Apply	Manu Jose
3	BP501T.3	Demonstrate the synthesis of some important class of drugs		Understand	Manu Jose
4	BP501T.4	Utilize the knowledge of the mechanism pathways of different class of medicinal compounds to understand their pharmacological activity		Understand	Manu Jose
5	BP501T.5	Demonstrate the chemistry, classification, SAR and uses of different classes of drugs with respect to their pharmacological activity.		Understand	Manu Jose

Generated at : 15/06/2023 11:23:01





# Nirmala College of Pharmacy, Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha								
Course	B Pharm								
Batch	2019-2023								
Semester	5								
Subject	Medicinal Chemistry II – 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
BP501T.1	Point : 3 Justification : Possess knowledge About drug metabolic pathways, adverse effect and therapeutic value of drugs		Point : 3 Justification : Knowledge about the metabolic pathways and factors affecting metabolism are important in analyzing the therapeutic agents.	Point : 1 Justification : Knowledge on the metabolism of drugs is important in drug discovery.		Point : 3 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 application	Point : 2 Justification : Can apply knowledge to explain the action of drug to the patients.
BP501T.2	Point : 3 Justification : Knowledge about relationship between the biological activity and Physicochemical properties of therapeutic agents. .	Point : 1 Justification : Knowledge drug physicochemical properties are essential for proper planning of drug discovery.	Point : 3 Justification : Physicochemical features affect drug action and hence knowledge about these factors are required to analyse the drug design problems.	Point : 2 Justification : To know about the Physicochemical factors are important in drug discovery.	Point : 1 Justification : Can give an overview of drug action and various factors affecting it	Point : 2 Justification : Get knowledge about drug design and factors which affect the pharmacological action.	Point : 1 Justification : Able to apply knowledge based on pharmaceutical ethics which is beneficial in the professional identity of a pharmacist	Point : 2 Justification : Could effectively communicate about the pharmacological action and various physicochemical factors affecting it.	Point : 2 Justification : The development of new drugs for new diseases will help for the betterment of health care system & society.
BP501T.3	Point : 3 Justification : Acquire knowledge on synthesis of some important class of drugs & its applications in the field of medicines.	Point : 2 Justification : Proper planning is required to make the medicines and also its evaluation in different stages requires delegation skill.	Point : 2 Justification : Synthesis steps are helpful in analyzing drug discovery process of different classes of drugs.	Point : 3 Justification : Modern technologies can be used to synthesize new molecules.	Point : 1 Justification : Synthesis pathways are useful in the process of drug discovery which leads to the formulation drugs with more advantages.	Point : 2 Justification : Can study the synthesis of various classes of drugs	Point : 1 Justification : Professional ethics is maintained by correlating with pharmacy knowledge in chemical nature of drugs.	Point : 2 Justification : Able to communicate effectively about the synthetic pathways of various classes of drugs	Point : 2 Justification : Can develop quality formulations for maintaining the health of the society.
BP501T.4	Point : 3 Justification : Get the knowledge about the mechanism pathways of different class of medicinal compounds to understand their pharmacological activity.	Point : 2 Justification : For determining the effect of chemical structure of a drug on its pharmacokinetic properties proper delegation skills & planning is required.	Point : 3 Justification : Knowledge about the mechanism of action and target tissues of each class of drugs are essential to produce new formulation.	Point : 2 Justification : Modern tools can be used to find out mechanisms of drug action	Point : 1 Justification : Knowledge on the mechanism of action of a compound & its pharmacokinetic properties can make an analyst for proper discovery of drugs.	Point : 2 Justification : Can explain mechanism of action of a drug and its pharmacokinetic properties.	Point : 1 Justification : Correlating pharmacy knowledge with ethics.	Point : 2 Justification : Could explain the mechanism of action of each class of drug and communicate with research sector and drug industry.	Point : 2 Justification : Pharmacokinetic properties of a drug is important in formulation of medicines.
BP501T.5	Point : 3 Justification : Knowledge about the important classes of medicinal compounds and drugs including their SAR, therapeutic uses, and applications in medical field.	Point : 3 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, therapeutic uses, and 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
Average Score	3	2	2.6	1.8	1	2.2	1	2	2

**Nirmala Coll**

Muvattupuzha P.O. Ernakulam Dist.

Email : info@nirmalacp

**Muvattupuzha**

n:686661

## Course Outcome

Institute	Nirmala College of Pharmacy,Muvattupuzha
Course	B Pharm
Batch	2020-2024
Semester	5
Subject	Pharmacology II – Theory

Sl.No	CO Code	Corse Outcome	Description	Bloom Level	Created_by
1	BP503T.1	Understand about the basic principles of pharmacological bioassays and the entire drug discovery processes including clinical trials		Analyze	V T Shamlal
2	BP503T.2	Explain how drugs, toxins, chemicals act in our body at organ system/sub cellular/ macromolecular levels. (i.e mechanisms of action)		Understand	V T Shamlal
3	BP503T.3	Explain the entire pharmacological aspects of drugs (such as classifications, mechanisms of action, adverse drug reactions, uses etc) acting on cardiovascular system		Understand	V T Shamlal
4	BP503T.4	Explain the entire pharmacological aspects of drugs (such as classifications, mechanisms of action, adverse drug reactions, uses etc) acting on endocrine system and autocrine		Understand	V T Shamlal
5	BP503T.5	Employ the knowledge gained through understanding of the pharmacology of drugs and apply it in the dispensing of drugs and help in the treatment of various diseases affecting the body systems and thus improve the general health of the community. (pharmacotherapeutics)		Analyze	V T Shamlal

Generated at : 06/06/2023 11:30:54



# Nirmala College of Pharmacy, Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha									
Course	B Pharm									
Batch	2020-2024									
Semester	5									
Subject	Pharmacology II – 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: Impact and sustainability
BP503T.1	Point : 3 Justification : Gives basic idea about bioassays & clinical trials	Point : 1 Justification : Proper planning ensures minimum deviations during clinical trials	Point : 1 Justification : Systematic scientific analysis of each problem during trials is needed	Point : 3 Justification : Learn, select & apply appropriate tools maybe essential for analysis	Point : 1 Justification : More active research is needed in these specific areas	Point : 3 Justification : Role of pharmacists is essential in every part of drug discovery	Point : 3 Justification : Study of Clinical ethics is the backbone of any trial	Point : 1 Justification : Proper and regular communications decreases need of rechecking data	Point : 3 Justification : Drug development through trials helps the society at large	
BP503T.2	Point : 3 Justification : Mechanism of actions defines a drug action	Point : 1 Justification : New drug therapies, orphan disease treatments can be planned	Point : 2 Justification : Analyzing & identifying drug targets is the key in developing new drugs	Point : 3 Justification : Study through softwares and enzyme receptor models is essential		Point : 3 Justification : Study of molecular mechanisms differentiates pharmacists from all others		Point : 1 Justification : Documentation and tabulation is essential	Point : 2 Justification : Understanding drug actions simplifies drug knowledge	Point : 1 Justification : Understanding drug actions simplifies drug knowledge
BP503T.3	Point : 3 Justification : Molecular pharmacology is going to the future in drug therapy	Point : 1 Justification : Understand the concept of adverse drug reactions and drug toxicity so that it can get minimize.	Point : 2 Justification : Tailor-made drugs for each patients can be developed by these methods	Point : 3 Justification : Gene and stem cell therapy in itself are modern and powerful tools		Point : 3 Justification : Evolution of drugs requires evolution of the pharmacist to a higher level	Point : 2 Justification : Ethical considerations are paramount in study of molecular pharmacology	Point : 1 Justification : Essential communication and proactive ideas is very much required	Point : 2 Justification : Tailor-made medicines maybe the best gift to mankind	Point : 1 Justification : Tailor-made medicines maybe the best gift to mankind
BP503T.4	Point : 3 Justification : Entire Pharmacology of a single drug among lakhs is studied		Point : 2 Justification : Deciding which drug, what dose and where to apply requires diagnosis and analysis	Point : 3 Justification : Newer drug databases, ADR data maybe important to decrease drug toxicity		Point : 3 Justification : Pharmacist is the best authority on pharmacology and drugs	Point : 2 Justification : Reducing the discomfort to animals helps maintain ethics in animal studies	Point : 2 Justification : Group experiments can be performed better with proper communication	Point : 1 Justification : Newer study techniques benefits future populations	
BP503T.5	Point : 3 Justification : Pharmacotherapeutics is the art of treating diseases with the knowledge of pharmacology	Point : 2 Justification : Planning a dose schedule and counseling guidelines is essential in therapeutics	Point : 1 Justification : Patient counseling and clearing drug queries is a major part of analyzing the treatment	Point : 3 Justification : Drug information can be obtained and disseminated through modern softwares	Point : 1 Justification : Patient counseling and responding to drug queries requires patience and being efficient	Point : 3 Justification : The importance and uses of Drug Information Centers (DIC) can be highlighted	Point : 1 Justification : Dose calculations should be proper and correct to avoid manipulation of data	Point : 2 Justification : Proper understanding between researchers decreases calculation errors	Point : 2 Justification : Proper dose calculations improves animal studies and creates better research output for all	Point : 1 Justification : Proper dose calculations improves animal studies and creates better research output for all
Average Score	3	1.25	1.6	3	1	3	2	1.4	2	1.3333

Generated at : 06/06/2023 11:31:25





# 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	B Pharm
Batch	2020-2024
Semester	5
Subject	Pharmacognosy and Phytochemistry II– Theory

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	BP504.1	Utilize the knowledge of the elucidation of biogenetic pathways of medicinally important secondary metabolites in phytochemical research fields and industry		Analyze	Ann Maria Alex
2	BP504.2	Understand and apply the knowledge of biological sources, cultivation/preparation, extraction, chemical constituents, chemical tests, uses and substitutes/adulterants of crude drugs in the herbal drug industry		Apply	Ann Maria Alex
3	BP504.3	Applying the knowledge of phytochemistry and estimation of marker compounds in the herbal drug industry		Apply	Ann Maria Alex
4	BP504.4	Knowledge of modern methods of extraction and techniques like Spectroscopy, chromatography and electrophoresis are helpful in herbal drug industry in the isolation, purification and identification of crude drugs.		Apply	Ann Maria Alex

Generated at : 06/06/2023 11:32:06







# Nirmala College of Pharmacy, Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha								
Course	B Pharm								
Batch	2020-2024								
Semester	5								
Subject	Pharmacognosy and Phytochemistry II– 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
BP504.1	Point : 3 Justification : Knowledge of Biosynthetic pathways	Point : 3 Justification : The intermediates in various pathway helps in semi-synthesis of therapeutically active compounds.				Point : 3 Justification : Knowledge of biogenetic pathways and tracer techniques make them well equipped professionally		Point : 3 Justification : Can give relevant guidelines for elucidation of biogenetic pathways	
BP504.2	Point : 3 Justification : Extensive knowledge in Pharmacognosy of Herbal Drugs	Point : 3 Justification : To plan effective usage of various species of a plant based on availability.	Point : 3 Justification : Reduction in quality of formulations can be identified by analysing whether the drug is authentic	Point : 2 Justification : Knowledge of qualitative and quantitative techniques in identification of adulterants	Point : 3 Justification : Sound knowledge of crude drugs helpful in proper identification and quality evaluation of herbal raw materials	Point : 3 Justification : Contribute much for better utilisation of medicinal plants due to knowledge of distribution of constituents in various families	Point : 3 Justification : Adulteration of herbal products can be identified easily by adopting evaluation protocols	Point : 3 Justification : Can give directions for proper collection of plant materials and their identification	Point : 3 Justification : Can indulge in activities which are helpful for the society by providing instructions on proper identification of herbal raw materials and preventing adulteration
BP504.3	Point : 3 Justification : Sufficient knowledge of principles of estimation of marker compounds	Point : 3 Justification : Helps in planning about designing formulations and standardization based on herbal drugs	Point : 3 Justification : Can solve problems which arise in estimation of phytoconstituents	Point : 2 Justification : Knowledge about marker compounds can be made use in separation procedures like chromatography but operation of sophisticated instruments require exposure and skills	Point : 3 Justification : Sound knowledge of estimation of phytochemicals helpful in guiding technical staff in herbal industry	Point : 3 Justification : In depth knowledge of analytical concepts of phytoconstituents make them well reputed in herbal drug industry	Point : 3 Justification : Knowledge of estimation of marker compounds useful in checking adulteration in final product in analytical jobs	Point : 3 Justification : Preparation of records of parameters for estimation of marker compounds	Point : 3 Justification : Knowledge of estimation of phytochemicals make them essential in evaluation of herbal products.
BP504.4	Point : 3 Justification : Sound knowledge in Phytochemical and Spectroscopic techniques	Point : 3 Justification : Can plan and execute various separation techniques as chromatography and identification by spectroscopy	Point : 3 Justification : Degradation of therapeutically active marker compounds can be analyzed	Point : 2 Justification : Basic concept of phytochemical techniques is known. The apparatus or instruments used in industry can be handled upon training	Point : 3 Justification : Sound knowledge of phytochemical techniques helpful in taking lead position in herbal drug industry	Point : 3 Justification : Application of knowledge of phytochemical principles in industry make them well accepted	Point : 3 Justification : Profit based adulteration of crude drugs can be identified by phytochemical techniques	Point : 3 Justification : Can communicate on the basic concepts involved in phytochemistry	Point : 3 Justification : The knowledge of therapeutically active principles and their separation principles can contribute to introduction of new herbal dosage forms
Average Score	3	3	3	2	3	3	3	3	3

Generated at : 06/06/2023 11:33:04





# 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	B Pharm
Batch	2020-2024
Semester	5
Subject	Pharmaceutical Jurisprudence – Theory

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	BP505T1	To understand the Pharmaceutical legislation & its implications in the development & marketing	A brief review; Introduction; Study of Drugs Enquiry Committee, Health Survey & Development Committee, Hathi Committee, Mudaliar Committee	Understand	Ann Maria Alex
2	BP505T2	To grasp knowledge on the administration of various Acts in India	The Medicinal & Toilet Preparations Act & Rules 1955; The Narcotic drugs & Psychotropic Substances Act & Rules 1985; The Drugs & Magic Remedies Act & Rules; The Prevention of Cruelty to Animals Act 1960; The Medical Termination of Pregnancy Act ; The Right to Information Act; National Pharmaceutical Pricing Authority; Introduction to Intellectual Property Rights (IPR); The D & C Act & Rules	Apply	Ann Maria Alex
3	BP505T3	To understand the Pharmacy Councils in India	Objectives of Pharmacy Act; definitions; Pharmacy Council of India, its constitution & functions; Educational regulations; State & Joint Pharmacy Councils, its constitution & functions; Registration of Pharmacists; Offences & penalties	Understand	Ann Maria Alex
4	BP505T4	To grasp the knowledge of the regulatory authorities and agencies governing the import, manufacture and sale of pharmaceuticals.	Administration of the Act & Rules; Drugs Technical Advisory Board; Central Drugs Laboratory; Drugs Consultative Committee; Government Drug Analysts; Licensing Authorities; Controlling Authorities; Drug Inspectors	Apply	Ann Maria Alex
5	BP505T5	To understand the code of ethics during the pharmaceutical practice & the pharmacist oath	Definition; Pharmacist in relation to his job, trade & medical profession; Pharmacist's oath	Apply	Ann Maria Alex



# Nirmala College of Pharmacy, Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha									
Course	B Pharm									
Batch	2020-2024									
Semester	5									
Subject	Pharmaceutical Jurisprudence – 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
BP505T1	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 : topic deliver need and irr legislations solving prob pharmacy
BP505T2	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 of various acts and rules.	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 price of drugs etc.	Point : 3 Justification : Knowledge about various acts help them to guide others about functioning of various laws, guidelines to be followed while doing animal experiments, conditions for termination of pregnancy, right to information etc.	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 : 2 Justification : Learn about a pharmacist role in society for administration of various Acts.	Point : 3 Justification : topic deliver need and irr various Acts society
BP505T3	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 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 : topic deliver need and irr professional for sustaina developmer
BP505T4	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, 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 : topic deliver need and irr sale and manufacture genuine dru society
BP505T5	Point : 3 Justification : Provides pharmacy knowledge about oath & ethics.	Point : 2 Justification : Teaches to develop and implement plans to perform the pharmaceutical practice	Point : 1 Justification : It teaches the possible problems and how to avoid this to perform the duties of	Point : 1 Justification : Learning ethics of pharmacists.	Point : 3 Justification : Can motivate the pharmacists about the need to be ethical in job, trade	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	Point : 3 Justification : Learn about ethics to be followed by pharmacist which in turn help the	Point : 3 Justification : topic deliver need and irr ethics in professional practice for betterment of 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
		according to the code of ethics.	pharmacists in ethical manner.		profession etc.			pharmacy a noble one.	society and their health.	
Average Score	3	2.8	1	1	2.6	3	3	2	2.8	3

Generated at : 06/06/2023 11:36:43





# 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	B Pharm
Batch	2020-2024
Semester	5
Subject	Formulative Pharmacy – Practical

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	BP506P.1P	Attain basic understanding in the area of preformulation study, manufacturing, packaging and labeling of tablets.		Apply	Melody Grace Baby
2	BP506P.2P	Understand the requirements of parenteral product preparation, packaging and labeling		Apply	Melody Grace Baby
3	BP506P.3P	Understand processes involved in the preparation and evaluation of syrups		Apply	Melody Grace Baby
4	BP506P.4P	Develop skill in the manufacturing and packaging of creams		Apply	Melody Grace Baby
5	BP506P.5P	Learn the evaluation studies of different formulations and packaging materials.		Apply	Melody Grace Baby

Generated at : 28/06/2023 14:47:44





# Nirmala College of Pharmacy, Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha					
Course	B Pharm					
Batch	2020-2024					
Semester	5					
Subject	Formulative Pharmacy – Practical					
	PO1: Pharmacy Knowledge	PO1	PO2: Planning Abilities	PO3:Problem Analysis	PO4:Modern tool usage	PO5: Learning
BP506P,1P	Point : 3 Justification : Preformulation studies, formulation technique, evaluation methods provide the students with good pharmacy knowledge		Point : 2 Justification : Preparation of solid dosage forms with the required facilities in specified time can develop good planning ability.	Point : 2 Justification : During manufacturing, students will be able to analyse and solve the problems they face	Point : 3 Justification : During tablet punching and Q.C tests students learn modern tools	Point : 1 Justification Group expects help the student to develop
BP506P,2P	Point : 3 Justification : Preparation, filling, sealing and sterilization techniques involved in the preparation of different sterile products provide the students with good pharmacy knowledge.		Point : 2 Justification : Formulation of sterile products with the required facilities in specified time can develop good planning	Point : 2 Justification : During manufacturing, students will be able to analyse and solve the problems they face	Point : 2 Justification : During filling, sealing and Q.C tests of sterile products students come across with instruments.	Point : 1 Justification Group expects help the student to develop
BP506P,3P	Point : 3 Justification : Formulation technique, packing and labeling of syrups provide the students with good pharmacy knowledge.		Point : 2 Justification : Preparation of syrups with the required facilities in specified time can develop good planning ability.	Point : 1 Justification : During manufacturing, students will be able to analyse and solve the problems they face.		Point : 1 Justification Group expects help the student to develop
BP506P,4P	Point : 3 Justification : Formulation technique, packing and labeling of creams provide the students with good pharmacy knowledge		Point : 2 Justification : Preparation of creams with the required facilities in specified time can develop good planning ability	Point : 2 Justification : During manufacturing, students will be able to analyse and solve the problems they face.		Point : 1 Justification Group expects help the student to develop
BP506P,5P	Point : 3 Justification : Evaluation studies of solid dosage forms, parenteral products and packaging materials provide the students with good pharmacy knowledge.		Point : 2 Justification : Conducting the evaluation studies with the required facilities in specified time can develop good planning ability	Point : 2 Justification : While performing tests students will be able to analyse and solve the problems they face	Point : 3 Justification : While evaluating different dosage forms, machineries are involved.	Point : 1 Justification Group expects help the student to develop
Average Score	3		2	1.8	2.66666666666667	1



# 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	B Pharm
Batch	2020-2024
Semester	5
Subject	Pharmacology II – Practical

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	BP507.1	Understand about the basic instruments used in experimental pharmacology and their assembling and uses		Understand	V T Shamlal
2	BP507.2	Know about the commonly used laboratory animals and how to maintain them. They also learn about the routes of drug administration in experimental animals as well as how to collect blood from animals used proper methods.		Understand	V T Shamlal
3	BP507.3	Learn and understand the common experiments performed in laboratory rats, frogs, rabbits etc and the step by step procedures of conducting the experiments using computer software.		Evaluate	V T Shamlal
4	BP507.4	Integrate and utilize the knowledge gained in the theory course by applying it in the practical sessions using various experiments on isolated tissue experiments. (chicken ileum)		Analyze	V T Shamlal
5	BP507.5	Use basic formulas and methods in experimental pharmacology and perform dose calculation experiments.		Analyze	V T Shamlal

Generated at : 17/07/2023 10:40:00





# Nirmala College of Pharmacy

Muvattupuzha P.O Ernakulam District Kerala  
Email : info@nirmalacp.org, Phone : 048528



## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha										
Course	B Pharm										
Batch	2020-2024										
Semester	5										
Subject	Pharmacology II – Practical										
	PO1: Pharmacy Knowledge	PO1	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:En and sust
BP507.1	Point : 3 Justification : Gives idea about various instruments used in experimental pharmacology		Point : 1 Justification : Assembling the equipments requires planning and execution	Point : 1 Justification : Selecting the right equipments for each experiment requires assessing the problem	Point : 2 Justification : Newer instruments and models provide better analysis	Justification : -	Point : 1 Justification : Study of bioassays helps in practical understanding of the mechanisms of drug action	Justification : -	Point : 1 Justification : Documentation of recordings is important for success of the study	Point : 1 Justification : Drug development through bioassays & animal studies helps in developing new drugs	Justificati
BP507.2	Point : 3 Justification : Laboratory animal studies are an important part of preclinical testing		Point : 2 Justification : Performing preclinical studies requires correct planning and implementation	Point : 2 Justification : Use of right species of animal is critical for study success	Point : 2 Justification : Study through modern screening techniques and new equipments is essential to decrease animal use	Point : 1 Justification : Following 3Rs correctly helps decrease animal use	Point : 2 Justification : Study of different screening instruments helps to increase specialty in a subject	Point : 3 Justification : Ethical values should be considered while designing animal studies	Point : 2 Justification : Documentation and tabulation is essential during recording raw data for analysis later	Point : 1 Justification : Modern screening techniques decreases repetition and wastage of animals	Justificati
BP507.3	Point : 3 Justification : Helps to study different types of animal experiments both invitro & invivo		Point : 2 Justification : Proper planning of the animal studies helps reduce animal wastage	Point : 2 Justification : Helps to answer which screening technique is best for which animal/disease	Point : 2 Justification : Modern techniques helps decrease animal use compared to old methods	Point : 1 Justification : Choosing to reduce animal use maybe a bold decision	Point : 2 Justification : Can becoming master of a particular screening technique and animal study	Point : 2 Justification : Ethical considerations are paramount in the study of laboratory animals	Point : 2 Justification : Essential communication and proactive ideas reduces animal use	Point : 2 Justification : Animal screening methods maybe the only safe way into clinical trials	Justificati
BP507.4	Point : 3 Justification : Understand the action of drugs through practicals and simple experiments		Point : 2 Justification : Planning of the experiment correctly helps to complete it in time	Point : 2 Justification : Understanding the principle and procedure of the study helps to conduct the experiment better	Point : 2 Justification : Newer organ baths and instruments helps to reduce study duration	Point : 1 Justification : Group experiments may require a head for better coordination	Point : 2 Justification : Animal studies and bioassays are characteristic and main experiments in pharmacology	Point : 2 Justification : Reducing the discomfort to animals helps maintain ethics in animal studies	Point : 2 Justification : Group experiments can be performed better with proper communication	Point : 1 Justification : Newer study techniques benefits future populations	Justificati
BP507.5	Point : 3 Justification : Dose calculations are an important part of any animal study		Point : 3 Justification : Calculating the dose requires prior planning and method development	Point : 3 Justification : Dose calculations in animals have to be extrapolated to humans later	Point : 2 Justification : Dose calculation studies can be computerized to make it faster and efficient	Justification : -	Point : 2 Justification : Dose studies establishes the role of a biostatistician	Point : 1 Justification : Dose calculations should be proper and correct to avoid manipulation of data	Point : 2 Justification : Proper understanding between researchers decreases calculation errors	Point : 2 Justification : Proper dose calculations improves animal studies and creates better research output for all	
Average Score	3		2	2	2	1	1.8	2	1.8	1.4	

Generated at : 17/07/2023 10:40:25



# 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	B Pharm
Batch	2020-2024
Semester	5
Subject	Pharmacognosy and Phytochemistry II – Practical

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO 1	Understand and apply the knowledge of Biological Sources, Morphology, Chemical tests, Uses, and Substitutes/Adulterants of crude drugs in the Herbal Drug Industry and research		Understand	Ann Maria Alex
2	CO 2	Utilize the knowledge of the Extraction of plant-based compounds in phytochemical research fields and industry.		Apply	Ann Maria Alex
3	CO 3	Applying the principles of Chromatography in the identification and isolation of phytoconstituents in herbal research and industry.		Understand	Ann Maria Alex
4	CO 4	Utilize the knowledge of Standardisation of extracts and formulations by marker compounds in Traditional types of Herbal Drug Industries like Ayurveda-based industries.		Apply	Ann Maria Alex

Generated at : 28/06/2023 14:49:04







# Nirmala College of Pharmacy

Muvattupuzha P.O Ernakulam District Kerala, Inc  
Email : info@nirmalacp.org, Phone : 048528368



## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha										
Course	B Pharm										
Batch	2020-2024										
Semester	5										
Subject	Pharmacognosy and Phytochemistry II – Practical										
	PO1: Pharmacy Knowledge	PO1	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:Enviro and sustain:
CO 1	Point : 3 Justification : Knowledge of Crude drugs in every aspect		Point : 3 Justification : Helps in planning about designing herbal based formulations	Point : 3 Justification : Any inconsistency in quality of crude drugs can be judged properly and be solved by proposing remedial measures	Point : 2 Justification : Knowledge about therapeutically active principles can be made use in separating procedures like chromatography Operation of sophisticated instruments require exposure and skills	Point : 3 Justification : Sound knowledge of crude drugs helpful in guiding people in herbal industry. But may not become useful in specific industries	Point : 3 Justification : Knowledge of crude drugs creates an identity in herbal industry	Point : 3 Justification : Knowledge of crude drugs useful in identifying adulterants, Exposure in industries are required	Point : 2 Justification : Preparation of records of parameters for identification of crude drugs helpful in developing presentation skills	Point : 3 Justification : Knowledge of crude drugs can be imparted to society as the use of plant-based products is increasing day by day	Point : 3 Justification : of parameters cultivation and conservation plants
CO 2	Point : 3 Justification : Sound knowledge in phytochemical techniques		Point : 3 Justification : Can plan and execute various extraction techniques	Point : 3 Justification : Degradation of therapeutically active marker compounds during extraction can be reduced by suggesting suitable modifications	Point : 2 Justification : Basic concept of phytochemical extractions is known. The apparatus or instruments used in industry Cannot be handled as pilot plant studies of extraction are not handled	Point : 3 Justification : Lacking in knowledge Of technical aspects to be encountered in industry	Point : 3 Justification : In depth knowledge of phytoconstituents helpful in extraction of targeted compounds	Point : 3 Justification : The presence of solvent residues can be controlled to a particular extent	Point : 3 Justification : Can communicate in a productive manner on the basic concepts involved in extraction procedures in phytochemistry	Point : 3 Justification : The knowledge of therapeutically active principles and their extraction principles can contribute to introduction of new herbal dosage forms	Point : 3 Justification : of solvents can be reduced by recovery procedures, applying princ of chemistry
CO 3	Point : 3 Justification : Basic knowledge and skills in chromatographic techniques		Point : 3 Justification : To plan the steps to be taken to prevent adulteration in drugs by using chromatographic techniques by selecting suitable mobile phases by trial and error system	Point : 3 Justification : The basic underlying errors in separation techniques can be rectified	Point : 2 Justification : Hands on training on sophisticated instruments like HPLC and HPTLC are lacking	Point : 3 Justification : Knowledge of marker compounds in plants	Point : 3 Justification : The basic knowledge in separation techniques may be helpful to an extent	Point : 3 Justification : Adulterants in raw materials can be easily analyzed by carrying out simple chromatographic procedures	Point : 3 Justification : Give directions to cultivators and raw material suppliers regarding the factors which contribute to reduction in quality	Point : 3 Justification : Can provide awareness to the cultivators regarding the cultivation of proper species by identifying the substituents having less percentage of active compounds to an extent	Point : 3 Justification : reducing the use of toxic chemicals like silica and minimizing the number of sol used in the separation procedures
CO 4	Point : 3 Justification : Knowledge of basic principles of alternative system		Point : 3 Justification : Can design new type of formulations in indigenous system based industries	Point : 3 Justification : Analyze deviations in manufacturing of traditional formulations in the modern industries which will reduce the efficacy of the same	Point : 2 Justification : Modern tools in phytochemistry can be utilized to check the quality of raw materials	Point : 3 Justification : Can act as a link between chemists and practitioners of alternative systems	Point : 3 Justification : Offers professional identity to an extent by basic knowledge of drugs in indigenous systems	Point : 3 Justification : By having knowledge of traditional drugs and their properties, the effect of modern processing technology which can cause reduction in their efficacy can be evaluated to an extent	Point : 3 Justification : Can give proper guidance in formulation development which are having longer shelf life	Point : 3 Justification : Can educate society about the possibilities of indigenous drugs	Point : 3 Justification : knowledge of harvesting practices, the overexploitati plants can be regulated
Average Score	3		3	3	2	3	3	3	2.75	3	3

Generated at : 28/06/2023 14:49:16

---

**2.6.1:**  
**Course Outcomes (COs)**

**Program: B pharm**  
**Batch: 6<sup>th</sup> semester**





# 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	B Pharm
Batch	2019-2023
Semester	6
Subject	Medicinal Chemistry III – Theory

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO1	Understand the importance of drug design and different techniques of drug design.		Create	Namitha T H
2	CO2	Understand the chemistry of drugs with respect to their biological activity.		Understand	Namitha T H
3	CO3	Know the metabolism, adverse effects and therapeutic value of drugs		Remember	Namitha T H
4	CO4	Know the importance of SAR of drugs.		Analyze	Namitha T H
5	CO5	Know the importance of Synthesis and mechanism of action of drugs.		Create	Namitha T H

Generated at : 06/06/2023 11:54:34





# Nirmala College of Pharmacy, Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888



## CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha									
Course	B Pharm									
Batch	2019-2023									
Semester	6									
Subject	Medicinal Chemistry III – 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
CO1	Point : 2 Justification : Possess knowledge about Classification, mechanism of action, uses of drugs mentioned in the course, Structure activity relationship of selective class of drugs as specified in the course	Point : 1 Justification : awareness of synthesis and drug designing	Point : 1 Justification : Impurity analysis is the purity conformation of a compound	Point : 1 Justification : study on drug development	Point : 2	Point : 2	Point : 2	Point : 2	Point : 2	Point : 2
CO2	Point : 2	Point : 2	Point : 2	Point : 2	Point : 2	Point : 1	Point : 1	Point : 1	Point : 2	Point : 2
CO3	Point : 1	Point : 2	Point : 2	Point : 2	Point : 2	Point : 1	Point : 2	Point : 1	Point : 2	Point : 2
CO4	Point : 1	Point : 1	Point : 2	Point : 2	Point : 2	Point : 1	Point : 2	Point : 1	Point : 2	Point : 2
CO5	Point : 2	Point : 1	Point : 2	Point : 2	Point : 2	Point : 2	Point : 2	Point : 2	Point : 2	Point : 2
Average Score	1.6	1.4	1.8	1.8	2	1.4	1.8	1.4	2	2

Generated at : 15/06/2023 11:33:39



# 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	B Pharm
Batch	2019-2023
Semester	6
Subject	Pharmacology III – Theory

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO 1	understand the pharmacology of drugs acting on Respiratory system and difference	Understand the basic idea for the drug of choice for various respiratory tract disorders.		Hema S
2	CO 2	Comprehend the principles of chemotherapy and treatment of various infections	To understand the goal of chemotherapy on pharmacological basis		Hema S
3	CO 3	Appreciate correlation of pharmacology with related medical sciences	To provide a core of fundamental information and the general principles underlying the use of pharmacological agents in the practice of medicine.		Hema S
4	CO 4	Understand the mechanism of drug action and its relevance in the treatment of different infectious diseases			Hema S
5	CO 5	Helps in correlating between pharmacology of a disease and its mitigation or cure.	Understanding the selection of drugs		Hema S
6	Elaborate the correlation of pharmacology with gene therapy	CO 6	Applying concepts developed for chemical drugs to extremely complex biological product		Hema S

Generated at : 06/06/2023 11:56:44





# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha
Course	B Pharm
Batch	2020-2024
Semester	6
Subject	Pharmacology III – 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
CO 1	Point : 2 Justification : Get basic knowldge about all category of drugs acting on respiratory system	Point : 1 Justification : PROPER PLANNING AND SELECTION OF DRUGS ACCORDING TO THE DISEASE CATEGORY	Point : 2 Justification : systematic analysis of disease and selction of drug according to their pharmacology			Point : 3 Justification : the role of pharmacist is essential for selection criteria of drugs	Point : 2 Justification : study of pharmacology of specific drugs is the backbone of diagnosing criteria		Point : 3 Justification : patient counselling on inhalers and general measures to take.		Point : 2 Justification : helps in research area				
CO 2	Point : 2 Justification : knowledge about cell cycle and how drug affect normal cell cycle	Point : 3 Justification : plann drug therapy according to the kind of therapy	Point : 2 Justification : analyse the kind of therapy and selection of drugs			Point : 2 Justification : by development of new drugs and combination therapy			Point : 2 Justification : combination therapy and new drugs selection make the pharmacist a great role in chemotherapy						
CO 3	Point : 3 Justification : more updation of drugs in current treatment		Point : 3 Justification : Use of pharmacological agents in the practice of medicine.			Point : 2 Justification : Pharmacist role in new pharmacological therapy			Point : 2 Justification : Pharmacist provide a core of fundamental information						
CO 4	Point : 2 Justification : understanding the mechanism of drug action and its relevance	Point : 1 Justification : plannin the tratment criteria for infectious disease						Point : 2 Justification : patient counselling regarding the infectious disease	Point : 3 Justification : patient counselling regarding the infectious disease and drugs used.	Point : 3 Justification : identify the microorganim related to the disease .					
CO 5	Point : 2	Point : 2	Point : 3	Point : 3		Point : 3									
CO 6	Point : 2	Point : 1		Point : 3				Point : 3							
Average Score	2.1666666666667	1.6	2.5	3		2.5	2	2.5	2.5	3	2				

Generated at : 06/01/2024 10:19:28





# 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	B Pharm
Batch	2019-2023
Semester	6
Subject	Herbal Drug Technology – Theory

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	BP 603.1	Utilize the knowledge of Herbal raw materials, WHO and ICH guidelines in phytochemical research fields and herbal drug industry.		Analyze	Prasanth B
2	BP 603.2	Formulate and develop herbal products, cosmetics and nutraceuticals		Create	Prasanth B
3	BP 603.3	Appreciate patenting of herbal drugs		Apply	Prasanth B
4	BP 603.4	Understand the herb-drug interactions		Apply	Prasanth B

Generated at : 06/06/2023 12:02:18





Email : [info@nirmalacp.org](mailto:info@nirmalacp.org), Phone : 04852836888



Institute	Nirmala College of Pharmacy,Muvattupuzha
Course	B Pharm
Batch	2019-2023
Semester	6
Subject	Herbal Drug Technology – Theory

[illegible]



	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
	: Sufficient knowledge of patenting of herbal formulations	Proper planning to safeguard the interests of manufacturer.	Have good knowledge regarding patenting procedures.	Students will get an idea about latest changes or amendments made in patent act.	: Able to lead people to get a patent by explaining different steps.	Have good knowledge regarding patenting procedures.	Biopiracy can be prevented to great extent.	Preparation of records for patenting procedure	By preventing biopiracy the interests of farmers can be safeguarded.	Promote geographical indication for herbal products and crude drugs.	Constantly upgrading data of patented herbal drugs.
BP 603.4	Point : 3 Justification : Sound knowledge in herb-drug interactions.	Point : 3 Justification : Helps the students to plan the ingredients during formulation development to avoid drug interactions	Point : 3 Justification : Application of knowledge of herb-drug interactions in real life situations.		Point : 3 Justification : Enable them to explain various drug interactions to patients.	Point : 3 Justification : Application of knowledge of herb-drug interactions in real life situations	Point : 3 Justification : Herb-Drug Interactions can be prevented.	Point : 3 Justification : Can communicate on different herb-drug interactions.	Point : 3 Justification : Unethical combinations of drugs can be prevented.		Point : 3 Justification : Update knowledge regarding herb-drug interactions
Average Score	3	3	3	2	3	3	3	3	3	3	3

Generated at : 06/06/2023 12:03:29





## Nirmala College

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

Email : info@nirmalacp.org, Phone : 04852836888



## vattupuzha

### Course Outcome

Institute	Nirmala College of Pharmacy,Muvattupuzha
Course	B Pharm
Batch	2019-2023
Semester	6
Subject	Biopharmaceutics and Pharmacokinetics – Theory

Sl.No	CO Code	Corse Outcome	Description	Bloom Level	Created_by
1	CO1	Describe the concept behind the biopharmaceutics, pharmacokinetics and design of dose and dosage regimen	Basics 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.	Pharmacokinetics	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

Generated at : 06/06/2023 12:04:45



# Nirmala College of Pharmacy, Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha									
Course	B Pharm									
Batch	2020-2024									
Semester	5									
Subject	Pharmaceutical Jurisprudence – 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
BP505T1	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 : topic deliver need and irr legislations solving prob pharmacy
BP505T2	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 of various acts and rules.	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 price of drugs etc.	Point : 3 Justification : Knowledge about various acts help them to guide others about functioning of various laws, guidelines to be followed while doing animal experiments, conditions for termination of pregnancy, right to information etc.	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 : 2 Justification : Learn about a pharmacist role in society for administration of various Acts.	Point : 3 Justification : topic deliver need and irr various Acts society
BP505T3	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 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 : topic deliver need and irr professional for sustaina developmer
BP505T4	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, 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 : topic deliver need and irr sale and manufacture genuine dru society
BP505T5	Point : 3 Justification : Provides pharmacy knowledge about oath & ethics.	Point : 2 Justification : Teaches to develop and implement plans to perform the pharmaceutical practice	Point : 1 Justification : It teaches the possible problems and how to avoid this to perform the duties of	Point : 1 Justification : Learning ethics of pharmacists.	Point : 3 Justification : Can motivate the pharmacists about the need to be ethical in job, trade	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	Point : 3 Justification : Learn about ethics to be followed by pharmacist which in turn help the	Point : 3 Justification : topic deliver need and irr ethics in professional practice for betterment of 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
		according to the code of ethics.	pharmacists in ethical manner.		profession etc.			pharmacy a noble one.	society and their health.	
Average Score	3	2.8	1	1	2.6	3	3	2	2.8	3

Generated at : 06/06/2023 11:36:43





## 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	B Pharm
Batch	2019-2023
Semester	6
Subject	Pharmaceutical Biotechnology – Theory

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO1	To explain the importance of immobilized enzymes in the microbial productions like fermentation, antibiotics		Understand	Junia George
2	CO2	To identify the requisites for recombinant technology and describe its applications in the field of biotechnology		Apply	Junia George
3	CO3	To comment on the production of monoclonal antibodies and its utility in pharmaceuticals		Understand	Junia George
4	CO4	To explain the fermentation process and its applicability in the production of antibiotics, enzymes		Understand	Junia George

Generated at : 06/06/2023 12:06:40





# Nirmala College of Pharmacy, Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	B Pharm
Batch	2019-2023
Semester	6
Subject	Pharmaceutical Biotechnology – 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
CO1	Point : 3 Justification : Imparts knowledge on the use of enzyme immobilization in Pharmaceutical Field	Point : 3 Justification : Plan effectively the processes which use immobilized enzymes	Point : 2 Justification : Find solutions to problems in the processes where immobilized enzymes are used	Point : 2 Justification : Modern diagnostic tools like multilocus enzyme electrophoresis, analytical tools like immobilized enzyme electrode	Point : 1 Justification : Equip oneself with the self-sufficient knowledge about the use of immobilized enzymes	Point : 2 Justification : Provides good knowledge about immobilized enzymes which helps professionally when related processes are done in research or industry	Point : 1 Justification : Specific diagnosis is made possible, which helps in effective treatment	Point : 2 Justification : Student can effectively communicate how widely immobilized enzymes can be utilized and what are their advantages	Point : 1 Justification : Communicable infectious diseases can be specifically diagnosed using immobilized enzymes	Point : 3 Justification : Sustainability is increased with the use of enzymes in immobilized form, compared to use of enzymes as such	Point : 3 Justification : The knowledge obtained helps to update about the growing applications of enzyme immobilization
CO2	Point : 3 Justification : Equip with the knowledge of Production of pharmaceuticals by genetic engineering	Point : 2 Justification : Plan for the producing medicines by using rDNA technology	Point : 2 Justification : Analyse the problems related to pharmaceutical production by genetic engineering	Point : 3 Justification : PCR, Cloning involve use of modern tools allow use of modern tools	Point : 1 Justification : The student can come forward production of medicines by utilizing genetic engineering principles	Point : 2 Justification : Medicine production give identity for pharmacy professionals	Point : 2 Justification : Production of medicines by recombinant DNA technology is professional activity	Point : 2 Justification : Effective communication of information related to molecular biology is possible	Point : 2 Justification : Community benefits from medicines of biotechnological origin for many emerging diseases	Point : 1 Justification : Humanised biotechnological products can help maintain sustainability	Point : 2 Justification : Biotechnology is growing branch of science and hence it give opportunity for continuous learning
CO3	Point : 3 Justification : Imparts knowledge of industrial application of monoclonal antibodies	Point : 2 Justification : Plan production of medicines of monoclonal	Point : 2 Justification : Analyse the problems related to industrial production of	Point : 3 Justification : Monoclonal antibodies are produced by hybridoma technology and it involve usage of modern tools like ELISA, Affinity chromatography etc.	Point : 1 Justification : Students can come forward with innovations in field of	Point : 2 Justification : Medicines based on monoclonal antibodies help students establish their professional identity	Point : 2 Justification : Production of medicines help the student perform professional responsibility	Point : 2 Justification : Students can effectively communicate information related to production of	Point : 2 Justification : Society benefits from medicines produced by hybridoma technology	Point : 1 Justification : Eradication of infectious microbes using monoclonal antibody based medicines helps in sustainability	Point : 2 Justification : Monoclonal antibody production principles help the student

	<b>PO1: Pharmacy Knowledge</b>	<b>PO2: Planning Abilities</b>	<b>PO3: Problem Analysis</b>	<b>PO4: Modern tool usage</b>	<b>PO5: Leadership Skills</b>	<b>PO6: Professional Identity</b>	<b>PO7: Pharmaceutical ethics</b>	<b>PO8: Communication</b>	<b>PO9: The Pharmacist and society</b>	<b>PO10: Environment and sustainability</b>	<b>PO11: Life Long learning</b>
		antibody origin	monoclonal antibodies		monoclonal antibodies			monoclonal antibodies			pursue higher studies in the same
CO4	Point : 3 Justification : Gain knowledge on use of microorganisms for fermentation in Pharmaceutical field	Point : 2 Justification : Plan for fermentation processes	Point : 2 Justification : Analyse the problems in fermentation processes	Point : 2 Justification : Equipments like Modern fermenters with automated control for pH, temperature etc	Point : 1 Justification : Provides good knowledge about the fermentation process in detail which helps the person to be authoritative in the field	Point : 2 Justification : Gives an idea about the different applications of fermentation in industry and research	Point : 2 Justification : Utilization of microorganisms for the production of products beneficial to human kind	Point : 2 Justification : Communications about the different aspects of fermentation	Point : 2 Justification : Products such as antibiotics which are produced by fermentation helps the society	Point : 3 Justification : Stable products are obtained and the waste can be processed effectively to avoid environmental hazards	Point : 3 Justification : The basic knowledge of fermentation helps update oneself about the advances in the field
Average Score	3	2.25	2	2.5	1	2	1.75	2	1.75	2	2.5

Generated at : 06/06/2023 12:07:22





# 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	B Pharm
Batch	2019-2023
Semester	6
Subject	Quality Assurance –Theory

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO1	Demonstrate the importance of quality in pharmaceutical products and importance of Good practices and regulatory affairs such as GMP, GLP, TQM etc		Understand	Aneeta Rose Varghese
2	CO2	understand the activities and responsibilities of QA & QC departments		Understand	Aneeta Rose Varghese
3	CO3	understand the scope of quality certifications such as ICH, ISO and NABL		Understand	Aneeta Rose Varghese
4	CO4	Explain about validation and Calibration and its importance in QA and QC		Understand	Aneeta Rose Varghese
5	CO5	Various aspects of Documentation in pharmaceutical Industry		Apply	Aneeta Rose Varghese

Generated at : 06/06/2023 12:08:34







# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha
Course	B Pharm
Batch	2019-2023
Semester	6
Subject	Quality Assurance –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
CO1	Point : 3 Justification : 3 Possess knowledge and comprehension of the core and basic knowledge associated with QA and QC	Point : 3 Justification : Will be able to plan and execute various QA and QC activities	Point : 3 Justification : QA and QC methods can be used for the identification of various problems associated with production of Quality product	Point : 1 Justification : basic concepts of QA and Quality management	Point : 3 Justification : knowledge of QA programs helps in identifying team building and leadership	Point : 3 Justification : Knowledge about the various aspects of Quality management principles provide a professional Identity	Point : 3 Justification : Study of importance of quality in pharmaceutical products and importance of Good practices and regulatory affairs helps to work in an ethical way	Point : 3 Justification : Students will be able to communicate effectively about the various aspects of QA and Quality management	Point : 3 Justification : Able to understand and solve various problems related to potency of drug	Point : 3 Justification : Effective implementation of various quality assuring parameters and knowledge about various good practices helps to manage environment	Point : 3 Justification : Basic knowledge about Quality assurance parameters can be used as a guide to recognize the QA systems following in various pharmacy related fields.
CO2	Point : 3 Justification : Able to plan various activities to implement Quality Assurance and quality control	Point : 2 Justification : Helps in planning various activities in QA and QC department	Point : 2 Justification : Systematic analysis of the activities helps to identify the problems Associated with each activities in an industry	Point : 1 Justification : Need to use modern tools to do the QA and QC process	Point : 2 Justification : Can guide the people in various departments	Point : 3 Justification : communicate the value of their professional roles in society as a QA QC personnel	Point : 2 Justification : Can apply ethical principles when performing the QA and QC activities	Point : 2 Justification : Can communicate effectively by giving clear instruction about Quality related activities	Point : 2 Justification : Properly planned activities helps to maintain the quality of finished products which will increase the customer satisfaction	Point : 2 Justification : The activities can be planned in such a way that it will not affect the environment adversely	Point : 3 Justification : The activities and responsibilities of QA & QC department will be improving day by day and that will open a way to learn more aspects
CO3	Point : 3 Justification :	Point : 3 Justification :	Point : 3 Justification :		Point : 1 Justification :	Point : 2 Justification :	Point : 3 Justification :	Point : 1 Justification : Can	Point : 3 Justification :	Point : 2 Justification :	Point : 3 Justification :

	<b>PO1: Pharmacy Knowledge</b>	<b>PO2: Planning Abilities</b>	<b>PO3: Problem Analysis</b>	<b>PO4: Modern tool usage</b>	<b>PO5: Leadership Skills</b>	<b>PO6: Professional Identity</b>	<b>PO7: Pharmaceutical ethics</b>	<b>PO8: Communication</b>	<b>PO9: The Pharmacist and society</b>	<b>PO10: Environment and sustainability</b>	<b>PO11: Life Long learning</b>
	Get in dept knowledge about various certifications and its impact on quality	Provide an opportunity to plan the activities in a way which comply with Quality Principles	Provides guidelines for problem analysis		knowledge in various guidelines facilitate improvement in health and well- being	Understand the various aspects of certification of QMS and EMS and communicate its benefits to the society	Knowledge about the certification and guidelines helps to apply ethical principles while making decisions and take responsibility for the outcomes associated with the decisions	communicate by giving clear instruction about the standards and certifications	Awareness about the quality attributes can be demonstrated	Various guidelines helps to maintain environment sustainability	Standards and guidelines are updated always and basic knowledge about these guidelines helps identify new trends in these fields.
CO4	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 : 3 Justification : helps in identifying the various issues related to QA process for pharmaceuticals	Point : 1 Justification : Basic understanding about the calibration of instruments	Point : 1 Justification : knowledge of QA programs helps in identifying team building and leadership	Point : 2 Justification : Application of validation and calibration principles in industry	Point : 2 Justification : The knowledge about validation and calibration helps in recognizing the ethical principles which should be followed	Point : 1 Justification : Only basic knowledge is available	Point : 2 Justification : validation and calibration provide quality products and which positively affect the society	Point : 1 Justification : Reliable analytical validation and calibration helps to maintain environment sustainability	Point : 3 Justification : Basic knowledge about validation and calibration can be used as a guide to recognize the QA systems following in various pharmacy related fields
CO5	Point : 3 Justification : Attain knowledge about Document maintenance in pharmaceutical industry	Point : 3 Justification : Proper documentation require proper planning	Point : 3	Point : 1 Justification : appropriate methods and procedures, resources, and modern pharmacy-related computing tools can be used.	Point : 2 Justification : participatory roles as responsible Personnel in Documentation	Point : 2 Justification : Will be able to analyse the documentation to improve the quality	Point : 2 Justification : Only proper documentation should be done and apply ethical principles in professional and social contexts.	Point : 3 Justification : Preparation of documents is a good way for communication		Point : 1 Justification : Proper documentation gives an idea about the effect of various activities on environment	Point : 2 Justification : Effective documentation act as a guideline for future studies
Average Score	3	2.6	2.8	1	1.8	2.4	2.4	2	2.5	1.8	2.8

Generated at : 06/06/2023 12:09:06





# 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	B Pharm
Batch	2019-2023
Semester	6
Subject	Medicinal chemistry III – Practical

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO 1	Understand and carryout the preparation of important medicinal compounds or intermediate by conventional method and their characterization.		Create	Namitha T H
2	CO2	Able to find out the percentage purity of given sample of medicinal compounds along with sandardization.		Understand	Namitha T H
3	CO3	Able to sketch chemical structures using softwares/online tools.		Create	Namitha T H
4	CO4	Able to determine physicochemical properties such as logP, clogP, Molecular weight, hydrogen bond acceptor ,donor of certain class of drugs using drug design softwares..		Apply	Namitha T H
5	CO5	Able to analyse the drug likeliness screening (Lipinski rule of 5)		Understand	Namitha T H

Generated at : 28/06/2023 14:49:54





# Nirmala College of Pharmacy, Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	B Pharm
Batch	2019-2023
Semester	6
Subject	Medicinal chemistry III – Practical

	PO1: Pharmacy Knowledge	PO1	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
CO 1	Point : 3 Justification : Well acquainted with the synthesis of some important class of drugs		Point : 3 Justification : Able to execute systematically the synthesis of medicinal compounds and intermediates	Point : 1 Justification : Able to synthesize correct product and characterize it can be done to identify the suitability of the product	Point : 1 Justification : For the synthesis of medicinal compounds modern tools are less required.	Point : 2 Justification : Knowledge of synthetic pathways helps in guiding people in pharmaceutical industries.	Point : 2 Justification : Can work production departments in drug manufacturing companies	Point : 2 Justification : Can apply ethical principles while doing the synthesis	Point : 2 Justification : Can communicate by giving clear instruction about synthesis of medicinal compounds	Point : 2 Justification : apply knowledge of synthetic pathways helps to synthesize new compounds for the betterment of humanity
CO2	Point : 3 Justification : Acquire knowledge about the quantitative analysis of samples and standardize various chemical solutions by various volumetric method		Point : 3 Justification : Will able to plan the various analytical technique for the qualitative analysis of samples and standardize various chemical solutions by various volumetric methods.	Point : 3 Justification : Perform the quantitative analysis of samples and standardize various chemical solutions make the students analyse the pharmaceutical products.	Point : 1 Justification : The volumetric assays require less modern equipments.	Point : 2 Justification : Helps the students to become a skilled analyst by knowing the good laboratory practices by understanding the common laboratory techniques.	Point : 3 Justification : Help the students to become a skilled analyst by knowing the good laboratory practices by understanding the common laboratory techniques.	Point : 1 Justification : Knowledge of common laboratory techniques and good laboratory practices helps to following ethical principles of drug industry.	Point : 3 Justification : Can communicate the standardization technique and its modifications if require with suitable explanations	Point : 2 Justification : Can communicate effectively about research methods that can be adopted
CO3	Point : 2 Justification : Able to perform operations in the laboratory such as weighing, transferring, titrations, recording and interpretation of analytical results.		Point : 3 Justification : Designing and planning of various operations such as weighing, transferring, titrations, recording and interpretation of analytical results mould the students.	Point : 3 Justification : identify the problems associated with various operations in the laboratory like weighing, transferring, titrations, recording and interpretation of analytical results	Point : 2 Justification : Weighing of analyte and sampling of analyte may require more sophisticated instruments to improve the quality of work		Point : 3 Justification : Enhance the student's skill in weighing, transferring, titrations, recording and interpretation of analytical results.	Point : 2 Justification : critical thinking and analytical reasoning based on ethical values makes the analytical data more reliable	Point : 3 Justification : Will be able to communicate the sampling technique	Point : 2 Justification : Able to utilize the skills to optimize the process in order to minimize the use of resources and conservation of them
CO4	Point : 3 Justification : Able to communicate the results of scientific work in oral, written and electronic formats.		Point : 3 Justification : Communication of the analytical results in oral, written and electronic formats require proper planning of the same	Point : 3 Justification : Proper scientific work will help to recognize the analytical problems.	Point : 2 Justification : data interpretation and derivatisation of the same demands the software for easy and accurate calculation	Point : 2 Justification : Communication of results in oral, written and electronic formats demands improved leadership skill	Point : 3 Justification : Communication ability of a students in data interpretation will ensure the professional dignity.	Point : 2 Justification : Enable to explore new areas of research, especially in applying knowledge in applied chemistry	Point : 3 Justification : communicate effectively about the analytical data in effective way	Point : 2 Justification : Commitment of students as pharmacist towards the society will get enhanced by the correct interpretation and communication of the same.
CO5	Point : 3 Justification : Regarding analysis of physiochemical properties and drug action such as partition coefficient		Point : 3 Justification : Proper planning is required for the analysis	Point : 2 Justification : Analysis of physiochemical properties helps in the design of proper lead molecules.	Point : 3 Justification : Modern tools can be effectively used to analyse the physiochemical properties .	Point : 2 Justification : Can motivate the society to identify the factors which affect the drug action	Point : 2 Justification : Can be a part of design of new drug molecules.	Point : 2 Justification : Can honor personal variations in values and apply ethics towards society	Point : 1 Justification : write effective reports and documentation.	Point : 2 Justification : 2 Can identify the irrelevant or harmful substance in the inorganic for the safety of the society
Average Score	2.8		3	2.4	1.8	2	2.6	1.8	2.4	2



# 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	B Pharm
Batch	2019-2023
Semester	6
Subject	Pharmacology III – Practical

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO 1	Understand about the basic instruments used in experimental pharmacology and their assembling and uses		Remember	Hema S
2	CO 3	Learn and understand the common experiments performed in laboratory rats, frogs, rabbits etc and the step by step procedures of conducting the experiments using computer softwares.		Create	Hema S
3	CO 2	Know about the commonly used laboratory animals and how to maintain them. They also learn about the routes of drug administration in experimental animals as well as how to collect blood from animals used proper methods.		Apply	Hema S
4	CO 4	Integrate and utilize the knowledge gained in the theory course by applying it in the practical sessions using various experiments			Hema S
5	CO 5	Use basic formulas and methods in experimental pharmacology and perform dose calculation experiments.		Apply	Hema S

Generated at : 28/06/2023 14:51:26





# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha
Course	B Pharm
Batch	2020-2024
Semester	6
Subject	Pharmacology 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.04
CO 1	Point : 3 Justification : Gives basic idea about bioassays & clinical trials	Point : 1 Justification : Proper planning ensures minimum deviations during clinical trial	Point : 1 Justification : Systematic scientific analysis of each problem during trails is needed	Point : 2 Justification : Learn, select & apply appropriate tools maybe essential for analysis		Point : 3 Justification : Role of pharmacists is essential in every part of drug discovery	Point : 3 Justification : Study of Clinical ethics is the backbone of any trial	Point : 3 Justification : Proper and regular communications decreases need of rechecking data	Point : 3 Justification : Drug development through trials helps the society at large	Point : 1 Justification : Needed for sustainability of environment as well as the human race	Point : 3 Justification : Clinical trials and bioassays paves the way for new drug development				
CO 2	Point : 3 Justification : Mechanism of actions defines a drug action		Point : 1	Point : 2		Point : 3	Point : 2		Point : 1						
CO 2	Point : 1	Point : 3	Point : 1		Point : 2		Point : 2	Point : 3							
CO 4	Point : 1		Point : 2		Point : 2		Point : 2		Point : 3						
CO 5	Point : 1		Point : 3	Point : 3			Point : 2	Point : 2	Point : 2						
Average Score	1.8	2	1.6	2.33333333333333	2	3	2.2	2.66666666666667	2.25	1	3				

Generated at : 12/01/2024 09:30:28





# 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	B Pharm
Batch	2019-2023
Semester	6
Subject	Herbal Drug Technology – Practical

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	BP609P	Utilize the knowledge of Herbal raw materials in formulation of Herbal Drugs and Cosmetics.		Apply	Lins Mary Joy
2	BP609P2	Formulate and develop Herbal Products and Cosmetics		Apply	Lins Mary Joy
3	BP609P3	Evaluation of Herbal Formulations		Apply	Lins Mary Joy

Generated at : 17/07/2023 10:43:19







# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha										
Course	B Pharm										
Batch	2019-2023										
Semester	6										
Subject	Herbal Drug Technology – Practical										
	PO1: Pharmacy Knowledge	PO1	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: Environmental and sustainability
BP609P	Point : 3 Justification : Knowledge of herbal raw materials and their standards		Point : 3 Justification : Efficient planning regarding raw materials to be used in preparation of herbal drugs based on standards available.	Point : 3 Justification : Knowledge of WHO and ICH guidelines is helpful in identifying the quality of herbal products and identify the stage at which the deterioration occurred.	Point : 2 Justification : Can handle analytical instruments used in standardisation	Point : 3 Justification : Good knowledge of WHO and ICH guidelines enable them to guide others in industry.	Point : 3 Justification : Knowledge of WHO and ICH guidelines make them professionally well equipped.	Point : 3 Justification : Adulteration of herbal raw materials can be prevented.	Point : 3 Justification : Can give directions on standardisation of herbal raw materials.	Point : 3 Justification : Usage of quality raw materials for the herbal drug industry, so eventually the consumers are benefitted.	Point : 3 Justification : Ensure good harvesting procedure
BP609P2	Point : 3 Justification : Extensive knowledge in formulation of herbal products and cosmetics.		Point : 3 Justification : Planning about designing herbal formulations and standardization.	Point : 3 Justification : Knowledge of formulations technology guide in solving difficulties arising during development of a drug.	Point : 2 Justification : Knowledge of analytical tools in evaluation of herbal cosmetics	Point : 3 Justification : Sound knowledge of herbal formulations helpful in guiding people in herbal industry	Point : 3 Justification : Contribute much for development of herbal formulations.	Point : 3 Justification : Evaluation of herbal formulations to state their quality.	Point : 3 Justification : Can properly communicate regarding herbal formulations.	Point : 3 Justification : Ensure production of herbal formulations with good quality	Point : 3 Justification : Ensure environmental compatibility packaging
BP609P3	Point : 3 Justification : Sufficient knowledge of evaluation of herbal formulations		Point : 3 Justification : Proper planning to safeguard the interests of manufacturer.	Point : 3 Justification : The practical problems encountered during evaluation can be solved.	Point : 2 Justification : Knowledge of analytical instruments help in updating the techniques.	Point : 3 Justification : Able to lead the technical people in herbal industry.	Point : 3 Justification : Have good knowledge regarding evaluation and quality control.	Point : 3 Justification : Adulteration can be prevented by following guidelines in evaluation.	Point : 3 Justification : Preparation of records and protocols for quality control.	Point : 3 Justification : Ensuring quality of herbal products.	Point : 3 Justification : Ensure proper disposal of discarded
Average Score	3		3	3	2	3	3	3	3	3	3

Generated at : 17/07/2023 10:43:32





---

**2.6.1:**  
**Course Outcomes (COs)**

**Program: B Pharm**

**Batch: 7<sup>th</sup> semester**





## 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	B Pharm
Batch	2018-2022
Semester	7
Subject	Instrumental Methods of Analysis – Theory

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	BP701T.1	Critically evaluate various analytical techniques in the context of qualitative and quantitative analysis of drugs	Critically evaluate various analytical techniques in the context of qualitative and quantitative analysis of drugs	Analyze	Elseena Jose
2	BP701T.2	Demonstrate an understanding of theory and application of most common methods of pharmaceutical analysis in research, academic and industry.	Demonstrate an understanding of theory and application of most common methods of pharmaceutical analysis in research, academic and industry.	Apply	Elseena Jose
3	BP701T.3	Apply the principles of chromatography in qualitative and quantitative analysis of pharmaceuticals in research and industrial perspective	Apply the principles of chromatography in qualitative and quantitative analysis of pharmaceuticals in research and industrial perspective	Apply	Elseena Jose
4	BP701T.4	Utilize the knowledge of spectroscopy in the elucidation of molecular structure and the interpretation of the result.	Utilize the knowledge of spectroscopy in the elucidation of molecular structure and the interpretation of the result.	Apply	Elseena Jose
5	BP701T.5	Demonstrate the scope of various analytical technique for the reliable analytical testing and documentation	Demonstrate the scope of various analytical technique for the reliable analytical testing and documentation	Apply	Elseena Jose

Generated at : 06/06/2023 12:12:17





# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha
Course	B Pharm
Batch	2018-2022
Semester	7
Subject	Instrumental Methods of Analysis – 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
BP701T.1	Point : 3 Justification : Possess knowledge About analytical techniques in the context of qualitative and quantitative analysis of drugs	Point : 3 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	Point : 3 Justification : Will be able to learn and use various analytical instruments	Point : 1 Justification : Lack of Knowledge to lead a team, Need more exposure to different analytical methods	Point : 2 Justification : Knowledge of Analytical methods create a professional identity	Point : 1 Justification : The modern analytical methods can be used for manipulation of data easily	Point : 1 Justification : Preparation of records of analytical method			Point : 3 Justification : basic concept of analytical techniques in qualitative and quantitative analysis of drugs helps to identify the new techniques
BP701T.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 : 1 Justification : Need more exposure to different analytical methods	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 : 3 Justification : Knowledge of theory and application of various methods can be used to explore new aspects of industry and research fields
BP701T.3	Point : 3 Justification : Possess basic knowledge	Point : 3 Justification : Will be able to plan and	Point : 3 Justification : The chromatographic	Point : 3 Justification : Tools like HPLC will	Point : 2 Justification : The knowledge	Point : 3 Justification : Application of chromatographic	Point : 1 Justification : Cultural and personal	Point : 1 Justification : Demonstration of chromatographic	Point : 1 Justification : Sound Knowledge	Point : 1 Justification : The usage of solvents and reagents	Point : 3 Justification : New innovative

	<b>PO1: Pharmacy Knowledge</b>	<b>PO2: Planning Abilities</b>	<b>PO3: Problem Analysis</b>	<b>PO4: Modern tool usage</b>	<b>PO5: Leadership Skills</b>	<b>PO6: Professional Identity</b>	<b>PO7: Pharmaceutical ethics</b>	<b>PO8: Communication</b>	<b>PO9: The Pharmacist and society</b>	<b>PO10: Environment and sustainability</b>	<b>PO11: Life Long learning</b>
	about principles of chromatography and its advantages	execute various separation techniques	techniques can be used for the qualitative and quantitative analysis of drugs and formulations	give exposure and skill	of separation techniques helps in guiding the people in basic separation techniques	techniques in industry	variabilities may reduce following ethical principles	techniques and Preparation of records in an effective manner	about chromatography creates an identity in society, but helps in less extent as a pharmacist	effectively and the selection of proper method may help in conservation of these chemical to an extent	ideas can be recognized and implemented to satisfy the emerging needs in separation and analysis of drugs and formulations
BP701T.4	Point : 3 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 : 3 Justification : Modern tools can be used for the structural analysis	Point : 2 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 : 2 Justification : Can give instructions about molecular structure interpretation			Point : 3 Justification : Can apply the basic concepts about structural interpretation to identify and study newer molecules
BP701T.5	Point : 3 Justification : Possess knowledge about the various analytical technique and its documentation	Point : 2 Justification : Various analytical technique can be used for the planning and analysis of drug substances	Point : 2 Justification : The topic related to various analytical technique helps in identifying the various aspects related to pharmaceuticals	Point : 3 Justification : various analytical technique use various modern tools	Point : 3 Justification : knowledge of various analytical technique helps in identifying team building and leadership	Point : 2 Justification : Application of various analytical technique in industry	Point : 3 Justification : The use of various analytical technique should be conducted in accordance with the ethical principles	Point : 2 Justification : Only basic knowledge is available	Point : 2 Justification : Understanding of theory and application of analytical methods help in reliable documentation	Point : 2 Justification : Effective implementation of analytical testing and documentation helps to maintain environment sustainability	Point : 2 Justification : Basic knowledge about various analytical technique can be used as a guide to recognize the systems following in various pharmacy related fields
Average Score	3	2.4	2.6	3	1.8	2.4	1.5	1.4	1.5	1.5	2.8



## 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	B Pharm
Batch	2018-2022
Semester	7
Subject	Pharmacy Practice – Theory

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	BP 703T	Describe organization and functions of hospital pharmacy and active participation in inventory control and drug distribution in hospitals	nil	Understand	Antriya Annie Tom
2	BP 703T	Perform professional activities of clinical pharmacist in health care	nil	Create	Antriya Annie Tom
3	BP 703T	Communicate effectively in patient counseling in hospital and community pharmacy	nil	Create	Antriya Annie Tom
4	BP 703T	Describe therapy for various diseases, patient counselling aspects, and ADR management of the drugs used for the same	nil	Understand	Antriya Annie Tom
5	BP 703T	Describe organization and functions of community pharmacy and active participation in inventory control and drug distribution	nil	Understand	Antriya Annie Tom

Generated at : 06/06/2023 12:19:52





# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute		Nirmala College of Pharmacy,Muvattupuzha													
Course		B Pharm													
Batch		2019-2023													
Semester		7													
Subject		Pharmacy Practice – 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
BP 703T	Point : 3 Justification : this chapter deals with the organization and functions of hospital pharmacy and active participation in inventory control and drug distribution in hospitals				Point : 3 Justification : this chapter helps us to know more about the duties and responsibilities in a hospital pharmacy		Point : 4 Justification : it deals with the different pharmaceutical ethics to follow while dispensing				Point : 3 Justification : this chapter helps us to know more about the duties and responsibilities in a hospital pharmacy		Point : 3 Justification : this chapter deals with the organization and functions of hospital pharmacy and active participation in inventory control and drug distribution in hospitals		Point : 3 Justification : it deals with the different pharmaceutical ethics to follow while dispensing
BP 703T	Point : 3 Justification : this chapter gives pharmacy knowledge about various professional activities of clinical pharmacist				Point : 3 Justification : this chapter gives the importance of leadership skills to perform by clinical pharmacist		Point : 3 Justification : this chapter deals with the pharmaceutical ethics followed by clinical pharmacist				Point : 3 Justification : this chapter gives pharmacy knowledge about various professional activities of clinical pharmacist		Point : 3 Justification : this chapter gives the importance of leadership skills to perform by clinical pharmacist		Point : 3 Justification : this chapter deals with the pharmaceutical ethics followed by clinical pharmacist
BP 703T															
BP 703T															
BP 703T															
Average Score	3				3		3.5				3		3		3

Generated at : 06/01/2024 11:37:26



# 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	B Pharm
Batch	2018-2022
Semester	7
Subject	Novel Drug Delivery System – Theory

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO1	Up on completion of the course the student will be able to Define the concept and principles of Novel drug delivery system		Understand	Vidya Peter
2	CO2	To Describe the various types and approaches for development of novel drug delivery systems.		Understand	Vidya Peter
3	CO3	Explain the criteria for selection of drugs and polymers for the development of Novel drug delivery systems, their formulation and evaluation		Apply	Vidya Peter
4	CO4	The student will be able to differentiate a Novel drug delivery system from a conventional drug delivery system.		Apply	Vidya Peter
5	CO5	The course can create critical thinking and the student may be able to come out with new idea on development of new NDDS to overcome the drawbacks of current medication		Create	Vidya Peter

Generated at : 06/06/2023 12:21:38



# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha
Course	B Pharm
Batch	2018-2022
Semester	7
Subject	Novel Drug Delivery System – 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
CO1	Point : 3 Justification : Posses basic knowledge about novel drug delivery systems and know about different formulation considerations in novel drug delivery systems and their merits and demerits, formulation and evaluation criteria	Point : 3 Justification : Design & development of novel DDS require planning like choice of drug and excipient molecule, method etc .	Point : 3 Justification : Can analyze problems affecting dissolution and diffusion during the designing of dosage forms			Point : 3 Justification : Provides them professional role in discussion with the production in charges in pharmaceutical industry	Point : 3 Justification : The knowledge on NDDS will helps them in development of proper dosage form	Point : 3 Justification : This practical knowledge could able to teach students more effectively.	Point : 2 Justification : Novel DDS improve the ease of applications finally improves the customers compliance.	Point : 3 Justification : Able to Formulate NDDS for need of society	Point : 3 Justification : This outcome always applies in the future for development of new dosage forms with goodstability, solubity and permeability
CO2	Point : 3 Justification : Teaches various approaches for development of Novel drug	Point : 3 Justification : After learning about the NDDS, the students can plan the	Point : 3 Justification : Can analyse the changes encountered by a formulation of NDDS			Point : 3 Justification : Provides them professional knowledge on the formulation development and	Point : 3 Justification : They can apply the principles of CDDS in formulation development	Point : 1 Justification : Practical knowledge on physicochemical properties of drug molecules can make strong presentations	Point : 2 Justification : A person deals with CDDS must be aware about the importance	Point : 3 Justification : Knowledge on CDDS helps them for the formulation in sustainable development	Point : 3 Justification : This outcome always applies in the future for development



	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
	delivery systems	procedure to develop these.				evaluation of NDDS.		regarding drug characters	of different properties and its impact on the safety and efficacy.		of stable dosage forms
CO3	Point : 3 Justification : Teaches about criteria for selection of drugs and polymers for the development of Novel drug delivery systems, their formulation and evaluation	Point : 3 Justification : After learning it the student get the concept of polymers and can plan the selection of polymers for NDDS.	Point : 3 Justification : Can analyze problems such as selection of polymers in nanotechnology			Point : 3 Justification : Provides them professional role in discussion with the production in charges in pharmaceutical industry	Point : 3 Justification : Apply ethical principles while taking decisions on selection of polymers for targeting	Point : 3 Justification : This practical knowledge could able to teach students more effectively.	Point : 1 Justification : Selection of polymers and other excipients can affect the appearance and release of drug from formulation that cause variations within the batch and finally dose variations that finally affects the customers compliance.	Point : 3 Justification : Various criteria for the selection of polymers helps them to apply for drug targeting in this era	Point : 3 Justification : Will able to synthesis new dosage forms with polymers and affect the drug release, which serves as a long term application in future
CO4	Point : 3 Justification : Posses basic knowledge about conventional dosage forms and NDDS.							Point : 2 Justification : they can able to explain the difference between conventional and novel DDS with others	Point : 1 Justification : they can teach the society about the advantages of NDDS over conventional DDS		
CO5	Point : 3 Justification : The student may able come out with new idea on development	Point : 3 Justification : student can plan for the different formulation	Point : 3 Justification : they can identify the problems related to dosage development			Point : 1 Justification : they can improve their professional identity in the society by	Point : 1 Justification : they can develop new formulations with decreased side effects and	Point : 2 Justification : they can communicate with the society about the added advantages of NDDS	Point : 3 Justification : they can fulfil the need of society by	Point : 1 Justification : they can reduce the environmental hazards by using biodegradable polymers in	Point : 3 Justification : students will get new ideas on formulation development

	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
	of new NDDS to overcome the drawbacks of current medication	aspects of NDDS	and will over come this by critical thinking			selecting their profession	increased advantages		developing NDDS	formulation development	
Average Score	3	3	3			2.5	2.5	2.2	1.8	2.5	3

Generated at : 06/06/2023 12:22:22





# 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	B Pharm
Batch	2018-2022
Semester	7
Subject	Industrial Pharmacy – Theory

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO1	Student will be able to impart basic knowledge about the process of pilot plant and scale up of pharmaceutical dosage forms		Understand	Vidya Peter
2	CO2	Student should be able to understand the process of technology transfer from lab scale to commercial batch		Understand	Vidya Peter
3	CO3	To understand the different laws and acts that regulate pharmaceutical industry in India and US		Understand	Vidya Peter
4	CO4	Student will be able to understand the approval process and regulatory requirements for drug products		Understand	Vidya Peter
5	CO5	To provide insights about the hazards happens in pharmaceutical industries and their reasons. Also the students will study how to manage and report such situations		Understand	Vidya Peter

Generated at : 13/06/2023 14:53:29





## Nirmala College of Pharmacy, Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

### CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha									
Course	B Pharm									
Batch	2018-2022									
Semester	7									
Subject	Industrial Pharmacy – 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
CO1	Point : 3 Justification : Possess knowledge and comprehension of the core and basic knowledge associated with pilot plant					Point : 3 Justification : Knowledge about the various aspects of management principles provide a professional identity		Point : 3 Justification : Students will be able to communicate effectively about the various aspects of QA and Quality management		
CO2	Point : 3 Justification : Able to plan various activities to implement technology development		Point : 3 Justification : Systematic analysis of the activities helps to identify the problems associated with each activities in an industry							
CO3	Point : 3 Justification : Get in dept knowledge about various certifications and its impact on quality	Point : 2 Justification : Provide an opportunity to plan the activities in a way which comply with regulatory requirements	Point : 3 Justification : Provides guidelines for problem analysis							
CO4	Point : 3 Justification : Possess knowledge about the Drug approval processes and its documentation									
CO5	Point : 3 Justification : Attain knowledge about hazards in pharmaceutical industry				Point : 3 Justification : participatory roles as responsible Personnel in Documentation					
Average Score	3	2	3		3	3		3		

Generated at : 13/06/2023 14:54:25





## Nirmala College

Muvattupuzha P.O Ernakul

Email : info@nirmalacp.org



Muvattupuzha

661

### Course Outcome

Institute	Nirmala College of Pharmacy,Muvattupuzha
Course	B Pharm
Batch	2018-2022
Semester	7
Subject	Instrumental Methods of Analysis – Practical

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	BP705.1	Illustrate the practical applications of instruments used in pharmaceutical research activities.	Illustrate the practical applications	Apply	Elseena Jose
2	BP705.2	Design the analytical methods and evaluate the drug substance and formulation as per pharmacopoeia guidelines.	Design the analytical methods and evaluate the drug substance and formulation as per pharmacopoeia guidelines.	Analyze	Elseena Jose
3	BP705.3	Utilize the theoretical skill in interpreting the qualitative and quantitative data in an effective way.	Utilize the theoretical skill in interpreting the qualitative and quantitative data in an effective way.	Apply	Elseena Jose
4	BP705.4	Apply the knowledge and subject specific skill to progress in academic as well as industrial research field	Apply the knowledge and subject specific skill	Apply	Elseena Jose
5	BP705.5	Utilize various analytical method for accessing the purity of formulations	Utilize various analytical method for accessing the purity of formulations	Apply	Elseena Jose

Generated at : 28/06/2023 15:01:58



# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha										
Course	B Pharm										
Batch	2018-2022										
Semester	7										
Subject	Instrumental Methods of Analysis – Practical										
	PO1: Pharmacy Knowledge	PO1	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:Environ and sustaina
BP705.1	Point : 3 Justification : Possess knowledge About analytical techniques in the context of qualitative and quantitative analysis of drugs		Point : 3 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	Point : 3 Justification : Will be able to learn and use various analytical instruments	Point : 2 Justification : The knowledge of various techniques helps in guiding the people in basic separation techniques	Point : 2 Justification : Knowledge of Analytical methods create a professional identity	Point : 3 Justification : The modern analytical methods may give correct results	Point : 2 Justification : Preparation of records of analytical method	Point : 2 Justification : Able to understand and solve various problems related to potency of drug by analytical methods	
BP705.2	Point : 3 Justification : Possess basic knowledge about principles of chromatography and spectroscopy and its advantages		Point : 3 Justification : Will be able to plan and execute various method developments	Point : 3 Justification : The developed methods can be used for the qualitative and quantitative analysis of drugs and formulations	Point : 3 Justification : Tools like HPLC will give exposure and skill	Point : 1 Justification : design of a new technique require collaboration of various members and will help in increasing leadership skills	Point : 2 Justification : Development of new techniques and its implementation in testing of drug substances produce a professional identity.	Point : 2 Justification : The modern analytical methods may give correct results	Point : 2 Justification : Demonstration of various analytical techniques and Preparation of records in an effective manner	Point : 1 Justification : Sound Knowledge about analytical techniques creates an identity in society, but helps in less extent as a pharmacist	Point : 2 Justification : T usage of solve and reagents effectively and selection of pr method may h conservation o these chemica an extent
BP705.3	Point : 3 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 : 3 Justification : Will be able to learn and use various analytical instruments and interpretation of data obtained	Point : 2 Justification : knowledge of spectroscopy in the elucidation of molecular structure helps to deal with drugs and formulations	Point : 2 Justification : The knowledge about spectroscopy in the elucidation of molecular structure and the interpretation of the result create a professional identity	Point : 1 Justification : The knowledge about the techniques helps to follow good ethics in all fields	Point : 2 Justification : Can give instructions about molecular structure interpretation		
BP705.4	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 : 1 Justification : Need more exposure to different analytical methods	Point : 2 Justification : Basic knowledge of theory and applications helps in industry and research field to obtain an identity	Point : 3 Justification : The modern analytical methods may give correct results	Point : 1 Justification : Can communicate effectively about research methods that can be adopted	Point : 1 Justification : Understanding of theory and application of analytical methods help in small extent to society as a pharmacist	
BP705.5	Point : 3 Justification : Possess knowledge About analytical techniques in the context of qualitative and quantitative analysis of drugs to check its purity		Point : 3 Justification : Purity of formulations can be assessed which needs planning	Point : 3 Justification : By using various analytical methods quality control and assurance programs can be performed	Point : 3 Justification : Modern tools provide more reliable results		Point : 2 Justification : Basic knowledge of theory and applications helps in industry and research field to obtain an identity		Point : 2 Justification : Can communicate effectively about purity of various formulations		
Average Score	3		2.6	2.8	3	1.5	2	2.25	1.8	1.33333333333333	2

---

**2.6.1:**  
**Course Outcomes (COs)**

**Program: B Pharm**  
**Batch: 8<sup>th</sup> semester**






# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha										
Course	B Pharm										
Batch	2018-2022										
Semester	8										
Subject	Biostatistics and Research Methodology										
	PO1: Pharmacy Knowledge	PO1	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	PO1 and
CO1	Point : 3 Justification : Knowledge of basic concepts of research contribute to their pharmacy knowledge		Point : 3 Justification : Knowledge of basic concepts of research help them to plan research effectively	Point : 3 Justification : The basic knowledge of research helps them to analyse research problems		Point : 3 Justification : The basic knowledge about research helps them to lead a research team efficiently	Point : 2 Justification : Knowledge of basics of research help them to understand their professional roles in research		Point : 3 Justification : The knowledge about making publications and writing thesis helps the students to understand the importance of clarity while communicating to others about their research projects. Also, they come to know how effective communication helps in the progress of research.		
CO2			Point : 3 Justification : Knowledge of data and its basic concepts helps in planning about collect data for their research work.	Point : 2 Justification : Knowledge about descriptive and inferential statistics are helpful in problem analysis.	Point : 3 Justification : Various methods in statistics can be apply when the statistical softwares are used						
CO3			Point : 2 Justification : Knowledge about statistical soft wares helps to choose appropriate tool.	Point : 3 Justification : Knowledge about statistical soft wares are helpful in problem analysis							
CO4	Point : 2 Justification : Knowledge of epidemiological study designs and clinical trials provide the students with good pharmacy knowledge.		Point : 3 Justification : Knowledge of epidemiological study designs and clinical trials help the students to plan and decide on research studies.	Point : 3 Justification : Knowledge of various bias and cofounding and errors that could occur in research activities would help students to foresee the problems and analyze to make decisions in daily practice		Point : 2 Justification : An understanding of clinical research and its effect on society enable them to be more professionally and socially responsible persons to lead the research team effectively				Point : 2 Justification : Knowledge of epidemiological study designs and clinical trials provide the students with good interpersonal skills	
Average Score	2.5		2.75	2.75	3	2.5	2	3	3	2	





# 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	B Pharm
Batch	2018-2022
Semester	8
Subject	Biostatistics and Research Methodology

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO1	Gain knowledge about the basics of Research and apply this knowledge in their own research		Understand	Vidya Peter
2	CO2	Learn about different types of data and their analysis		Understand	Vidya Peter
3	CO3	Know the different computer softwares in statistics		Understand	Vidya Peter
4	CO4	To study the different epidemiologic study designs and the basic concepts of clinical trials.		Understand	Vidya Peter

Generated at : 13/06/2023 14:59:09





# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha										
Course	B Pharm										
Batch	2018-2022										
Semester	8										
Subject	Social and Preventive Pharmacy										
	PO1: Pharmacy Knowledge	PO1	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:En and sust
BP802T	Point : 3 Justification : Acquires knowledge on social causes of diseases and social problems of the sick		Point : 2 Justification : Assignments, seminars and group discussions encourage planning. Also by giving case studies, they will plan how to execute in their profession	Point : 2 Justification : Case studies on topics on national or international health issues as a problem— elicit response from students on how it occurs, how it can be tackled, Done by giving	Point : 1 Justification : Seminars and assignments encourage them to use MS word, power point, CD library and internet	Point : 1 Justification : Group discussions inculcate leadership qualities			Point : 3 Justification : Asking questions, seeking opinions, encouraging discussions in each class improve communication skills	Point : 3 Justification : Encouraging students to take initiatives to educate society regarding social causes of diseases	Point : 2 Justification : impact of environmental factors on etiology of diseases
BP802T	Point : 3 Justification : Acquires knowledge on nutrition and prevention of malnutrition and deficiency diseases		Point : 2 Justification : Assignments, seminars and group discussions encourage planning. Also by giving case studies, they will plan how to execute in their profession		Point : 1 Justification : Seminars and assignments encourage them to use MS word, power point, CD library and internet	Point : 1 Justification : Group discussions inculcate leadership qualities	Point : 3 Justification : Pharmacists' role in nutrition and prevention of malnutrition is made aware to the students		Point : 3 Justification : Asking questions, seeking opinions, encouraging discussions in each class improve communication skills	Point : 3 Justification : Encouraging students to take initiatives to educate society regarding nutrition and tackling of malnutrition	
BP802T	Point : 3 Justification : Acquires knowledge public health in relation to prevention and control of diseases		Point : 3 Justification : Assignments, seminars and group discussions encourage planning. Also by giving case studies, they will plan how to execute in their profession	Point : 2 Justification : Case studies on different disease topics — elicit response from students on how it occurs, how it can be prevented	Point : 3 Justification : Seminars and assignments encourage them to use MS word, power point, CD library and internet	Point : 2 Justification : Group discussions inculcate leadership qualities	Point : 3 Justification : Pharmacists' role in prevention and control of diseases is made aware to the students		Point : 3 Justification : Asking questions, seeking opinions, encouraging discussions in each class improve communication skills	Point : 3 Justification : Encouraging students to take initiatives to educate society regarding prevention of various diseases	Point : 3 Justification : Identifying solving environmental problems help prevent diseases
BP802T	Point : 3 Justification : Acquires knowledge on national and state health programs and also be aware of WHO health initiatives		Point : 3 Justification : Assignments, seminars and group discussions encourage planning. Also by giving case studies, they will plan how to execute in their profession	Point : 2 Justification : In depth analysis of state and national health programmes to identify problems in implementation and how that can be made more effective	Point : 3 Justification : Seminars and assignments encourage them to use MS word, power point, CD library and internet	Point : 2 Justification : Group discussions inculcate leadership qualities	Point : 3 Justification : Pharmacists' role in each national health programme is made aware to the students	Point : 1 Justification : Creating awareness on considering human ethics and values in forming state and national health programmes	Point : 3 Justification : Asking questions, seeking opinions, encouraging discussions in each class improve communication skills	Point : 3 Justification : Encouraging students to take part in national health programme activities especially through different camps, awareness programmes,etc.	
BP802T	Point : 3 Justification : Acquires knowledge on national health mission activities		Point : 3 Justification : Assignments, seminars and group discussions encourage planning.		Point : 3 Justification : Seminars and assignments encourage them to use MS word,	Point : 2 Justification : Group discussions inculcate leadership qualities	Point : 3 Justification : Pharmacists' role in national health mission activities and also rural and urban health activities by	Point : 1 Justification : Creating awareness on considering human ethics and values in implementing	Point : 3 Justification : Understanding of skills needed for patient and community education	Point : 3 Justification : Encouraging students to take part in national health mission activities and public health	

	PO1: Pharmacy Knowledge	PO1	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:En and sust
	and community services of primary health centres in rural, urban and school health		Also by giving case studies, they will plan how to execute in their profession		power point, CD library and internet		primary health centers are informed to students	national health mission activities		centers initiatives in rural and urban sectors especially through different camps, awareness programmes, etc.	
Average Score	3		2.6	2	2.2	1.6	3	1	3	3	2.5

Generated at : 17/07/2023 10:47:14





# 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	B Pharm
Batch	2018-2022
Semester	8
Subject	Social and Preventive Pharmacy

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	BP802T	Understand the concept of public health in relation to social causes of diseases and social problems of the sick		Understand	Antriya Annie Tom
2	BP802T	Understand the concept of public health in relation to nutrition and prevention of malnutrition		Understand	Antriya Annie Tom
3	BP802T	Understand general principles of public health in relation to prevention and control of diseases		Understand	Antriya Annie Tom
4	BP802T	Actively involve in national and state health programs and also be aware of WHO health initiatives		Create	Antriya Annie Tom
5	BP802T.	Actively involve in national health mission activities and community services of primary health centres in rural, urban and school health		Apply	Antriya Annie Tom

Generated at : 13/06/2023 15:02:56





# Nirmala College of Pharmacy, Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888



## CO-PO Mapping

Institute	Nirmala College of Pharmacy, Muvattupuzha
Course	B Pharm
Batch	2018-2022
Semester	8
Subject	Pharmaceutical Regulatory Science

	PO1: Pharmacy Knowledge	PO1	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 sustain
BP804.1	Point : 3 Justification : Students get understand how new drugs are discovered and how they are developed				Point : 3 Justification : they get ideas on the modern tools/ softwares used in drug discovery and development						
BP804.2	Point : 3 Justification : Students gain Know the regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals and know about Regulatory Approval Process										
BP804.3	Point : 3 Justification : Students get clear idea on Know about the Registration of Indian drug product in overseas market										
BP804.4	Point : 3 Justification : Know about the procedure for conducting clinical trials and and documentation							Point : 3 Justification : students gain knowledge in the ethical principals that should be followed in clinical trials		Point : 3 Justification : students gain knowledge in the responsibilities of pharmacist in clinical trial and the legal aspects of clinical trial	
BP804.5	Point : 3 Justification : students study about, laws and acts, Orange book, Federal Register, Code of Federal Regulatory, Purple book										
Average Score	3				3			3		3	

Generated at : 17/07/2023 10:47:32



# 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	B Pharm
Batch	2018-2022
Semester	8
Subject	Pharmaceutical Regulatory Science

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	BP804.1	Know about the process of drug discovery and development	UNIT 1	Understand	Gifty M Jojo
2	BP804.2	Know the regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals and know about Regulatory Approval Process	UNIT II	Understand	Gifty M Jojo
3	BP804.3	Know about the Registration of Indian drug product in overseas market	UNIT III	Understand	Gifty M Jojo
4	BP804.4	Know about the procedure for conducting clinical trials and documentation of	UNIT IV	Understand	Gifty M Jojo
5	BP804.5	Regulatory Concepts	UNIT V	Understand	Gifty M Jojo

Generated at : 13/06/2023 15:04:04





# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha									
Course	B Pharm									
Batch	2018-2022									
Semester	8									
Subject	Pharmacovigilance									
	PO1: Pharmacy Knowledge	PO1	PO2: Planning Abilities	PO3:Problem Analysis	PO4:Modern tool usage	PO5: Leadership Skills	PO6:Professional Identity	PO7 Pharmaceutical ethics	PO8:Communication	PO9: T Pharmacis societ
BP805T.1	Point : 3 Justification : gains information aout the development of pharmacovigilance				Point : 1 Justification : informaion about modern tools for developing pharmacovigilance	Point : 1 Justification : discuss about the history of pharmacovigilance and initiatives take	Point : 1 Justification : improves professional identity		Point : 1 Justification : helps in interacting and discussing about pharmacovigilance activities	Point : 1 Justification transfer information t society abou history of pharmacovi
BP805T.2	Point : 2 Justification : use of knowledge in the field to report various ADRS		Point : 1 Justification : helps in improving planning abilities	Point : 1 Justification : Analyse the issues regarding reporting of ADR	Point : 3 Justification : USE OF VARIOUS PLATFORMS IN REPORTING OF adr	Point : 3 Justification : enhancesership skills lead	Point : 3 Justification : enhances the role of pharmacist in reporting and identifying ADR	Point : 3 Justification : Ethics should be followed in reporting ADR	Point : 2 Justification : aids in communication between health care professionals	Point : 2 Justification enhances tr of pharmaci making soci aware abou reporting of
BP805T.3										
BP805T.4										
BP805T.5	Point : 3 Justification : Use of pharmacy knowledge in identifying gene and development of ADR				Point : 3 Justification : Use of modern equipments in identifying genetic basis of ADR	Point : 3 Justification : improves leadership skills	Point : 1 Justification : develops professional identity		Point : 2 Justification : iproves communication	Point : 2 Justification improves th health of so preventing occurence c
Average Score	2.6666666666667		1	1	2.3333333333333	2.3333333333333	1.6666666666667	3	1.6666666666667	1.66666666

Generated at : 17/07/2023 10:47:48





# 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	B Pharm
Batch	2018-2022
Semester	8
Subject	Pharmacovigilance

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	BP805T.1	Understand the concept Pharmacovigilance, gain deep understanding on the concept of Adverse Drug Reactions and to memorize the terms used in Pharmacovigilance.		Understand	Dona Maria Jetto
2	BP805T.2	Understand the concept Drug & Disease Classification and the basic criteria for establishing Pharmacovigilance programme in India.		Understand	Dona Maria Jetto
3	BP805T.5	Equipped to actively involve in Pharmacogenomics of adverse drug reactions		Apply	Dona Maria Jetto

Generated at : 13/06/2023 15:04:37







# 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	B Pharm
Batch	2018-2022
Semester	8
Subject	Quality Control and Standardizations of Herbals

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	BP806ET 1	Able to explain the safety monitoring , quality control of Herbal Drugs & testing of pharmaceuticals	WHO Guidelines on Safety monitoring of herbal medicines in pharmacovigilance systems ,Quality control of herbal drugs, evaluation of crude drugs, testing of pharmaceutical substances and dosage forms , Role of biological markers ,Application of chromatographic techniques, Stability testing etc.	Evaluate	Lins Mary Joy
2	BP806ET 2	Able to explain quality assurance in herbal drug industry.	Quality assurance in herbal drug industry of cGMP, GAP, GMP and GLP in traditional system of medicine. WHO Guidelines on current good manufacturing Practices (cGMP) for Herbal Medicines. WHO Guidelines on GACP for Medicinal Plants.	Apply	Lins Mary Joy
3	BP806ET 3	Able to explain various regulatory approval process and their registration in Indian and International Markets	Preparation of documents for new drug application and export registration GMP requirements and Drugs & Cosmetics Act provisions	Apply	Lins Mary Joy
4	BP806ET 4	Able to explain EU and ICH guidelines for quality control of herbal drugs	EU and ICH guidelines for quality control of herbal drugs. Research Guidelines for evaluating the safety and efficacy of herbal medicines	Understand	Lins Mary Joy

Generated at : 17/07/2023 10:45:42





# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha										
Course	B Pharm										
Batch	2018-2022										
Semester	8										
Subject	Quality Control and Standardizations of Herbals										
	PO1: Pharmacy Knowledge	PO1	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: Environmental sustainability
BP806ET 1	Point : 3 Justification : Knowledge on various quality control aspects of herbal drugs		Point : 3 Justification : plan suitable method for evaluation /quality control of herbal drugs.	Point : 3 Justification : Confirm the identity and adulteration in herbal drugs.	Point : 3 Justification : use of modern tools like chromatographic methods	Point : 3		Point : 3 Justification : Importance of ethics in quality control			
BP806ET 2	Point : 3 Justification : Knowledge on quality assurance in herbal drug industry		Point : 3 Justification : Can plan various steps in cultivation & manufacture to improve quality of herbal drugs.	Point : 3 Justification : Solve different problems in quality of drugs by applying WHO guidelines.	Point : 3 Justification : use of modern cultivation methods in cultivation			Point : 3 Justification : Importance of ethics in cultivation and manufacture to maintain quality.Importance of ethics in quality control.			
BP806ET 3	Point : 3 Justification : Knowledge on regulatory approval and registration		Point : 2 Justification : Explain various regulatory aspects and registration process.	Point : 2 Justification : Can prepare documents correctly for new drug application & registration.	Point : 2 Justification : use of recent approval process.			Point : 3 Justification : Importance of ethics in quality control			
BP806ET 4	Point : 3 Justification : Knowledge on guidelines for quality control of herbal drugs.		Point : 2 Justification : plan and select guidelines for quality control	Point : 2 Justification : Solve various problems in quality of drugs by following EU 7 ICH guidelines	Point : 2 Justification : use various research guidelines for evaluating safety & efficacy of crude drugs.			Point : 3 Justification : Importance of ethics in quality control			
Average Score	3		2,5	2,5	2,5	3		3			

Generated at : 17/07/2023 10:46:38





# 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	B Pharm
Batch	2018-2022
Semester	8
Subject	Computer Aided Drug Design

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	Co 1	Able to understand the design and discovery of lead molecules		Understand	Saranya T S
2	CO 2	To describe the concept of QSAR and docking		Remember	Saranya T S
3	co 2	To design and discover of lead molecules		Apply	Saranya T S
4	co 2	To design and discover of lead molecules		Apply	Saranya T S
5	CO 3	To learn the concept of pharmacophore modelling technique		Apply	Saranya T S
6	CO 4	To design a new drug molecules using molecular modelling software		Apply	Saranya T S
7	CO 5	To explain the various strategies to develop new drug like molecules		Analyze	Saranya T S

Generated at : 13/06/2023 15:05:49





# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha
Course	B Pharm
Batch	2018-2022
Semester	8
Subject	Computer Aided Drug Design

	PO1: Pharmacy Knowledge	PO1	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
Co 1	Point : 1 Justification : students would attain firm foundation in the fundamentals and application of molecular modelling and identification of lead molecules		Point : 1 Justification : Synthesise new molecule with good efficacy	Point : 1 Justification : identify safe molecule with dry lab mechanism	Point : 1 Justification : completely a modern tool	Point : 2 Justification : can utilize the basic knowledge about molecules to prepare new medicines to facilitate the improvement in health and well being	Point : 2 Justification : those who completed graduation can teach the diploma students in future	Point : 2 Justification : become familiar with the safety ethics	Point : 2	Point : 2 Justification : they get the basic nucleus prest in the drug
CO 2	Point : 3 Justification : Able to understand the QSAR and Docking		Point : 2 Justification : can identify easily the nature of compounds for effective planning	Point : 1 Justification : understanding of scientific principles and concepts and be able to apply this knowledge to the solution of problems and performance of experiments	Point : 2 Justification : able to drug design software based on the activity of the compounds	Point : 1	Point : 1	Point : 2	Point : 2 Justification : communicate effectively through written and oral reports	Point : 2
CO 3	Point : 2 Justification : Recognize different principles involved in the field of rational drug design comprising the following Principles correlating structural properties with the biological activity: Physical properties; Stereochemistry and Bio-isostearism		Point : 2 Justification : tsudents shall be able to plan the steps needed for pharmacophore modelling	Point : 1	Point : 2 Justification : students can utilize computational resources for and studying organic molecules	Point : 2	Point : 2		Point : 2	Point : 2
CO 4	Point : 3 Justification : teaches about the different softwares for drug modelling		Point : 2 Justification : with this outcome it is able to demonstrate effective planning abilities including time management, resource management,delegation skills and organizational skills for the development of new drugs and also able to develop and implent plans and organise work to meet deadlines	Point : 1	Point : 2	Point : 2	Point : 2	Point : 2	Point : 2	Point : 2
CO 5	Point : 2 Justification : Able to understand the various strategies to develop new drug like molecules		Point : 2	Point : 2	Point : 2	Point : 2 Justification : can play leadership roles with innovation ideas	Point : 2	Point : 2	Point : 1 Justification : able to communicate with research sector and drug industry	Point : 2 Justification : basic idea of drug design to motivate them to design a new drugs in future for

	PO1: Pharmacy Knowledge	PO1	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
										the betterment of the society
Average Score	2.2		1.8	1.2	1.8	1.8	1.8	2	1.8	2

Generated at : 17/07/2023 10:48:03





# 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	B Pharm
Batch	2018-2022
Semester	8
Subject	Cell and Molecular Biology

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	CO 1	introduction to the basics of cell and its components.		Remember	Hema S
2	CO 2	The students can explain the fundamental knowledge on the structure and functions of cellular components.		Understand	Hema S
3	CO 3	They would appreciate the interaction of these components with drugs. This would enable them to apply the knowledge in drug discovery process		Apply	Hema S
4	CO 4	They would have learnt to explain the molecular pathways affected by drugs		Understand	Hema S
5	CO 5	The student will gain a basic understanding on human genetics and hereditary		Remember	Hema S

Generated at : 17/07/2023 10:48:40





# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha										
Course	B Pharm										
Batch	2018-2022										
Semester	8										
Subject	Cell and Molecular Biology										
	PO1: Pharmacy Knowledge	PO1	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:Er and sus
CO 1	Point : 3 Justification : Basic knowledge about the basics of cell.		Point : 3 Justification : ability to identify the cell and their functions	Point : 3 Justification : depends on the functioning of cells the disease diagnosis can done.							
CO 2	Point : 2 Justification : knowledge on the structure and functions of cellular components.		Point : 3 Justification : Evaluate the limitations of and troubleshoot experimental approaches.					Point : 3 Justification : Apply the principles of academic integrity and ethics of scientific research		Point : 2 Justification : can provide pateint counselling	
CO 3	Point : 3 Justification : basic knowledge of cell biology help them to apply the knowledge in drug discovery		Point : 2 Justification : plan the therapy according to the protein structures.		Point : 2 Justification : Drug discovery utilizes chemical biology and computational drug design approaches for the efficient identification and optimization.			Point : 3 Justification : Apply the principles of academic integrity and ethics of scientific research.		Point : 3 Justification : provide more about the drugdiscovery accorging to genetics	
CO 4	Point : 3 Justification : get more idea about molecular pathway and how drug act on it.		Point : 2 Justification : can propose drug therapy according to the alteration or mismatch in molecular pathway.				Point : 3 Justification : Plan for professional growth and personal development .			Point : 2 Justification : Design and implement experimental procedures using relevant techniques	
CO 5	Point : 2 Justification : Critically assess, and utilize primary scientific literature to research a topic			Point : 3 Justification : analysis the limitations of and troubleshoot experimental approaches.	Point : 3 Justification : conduct research with relevant computational and bioinformatics tools			Point : 3 Justification : limitations of and troubleshoot experimental approaches.			
Average Score	2.6		2.5	3	2.5		3	3		2.33333333333333	

Generated at : 17/07/2023 10:48:27



# 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	B Pharm
Batch	2018-2022
Semester	8
Subject	Cosmetic Science

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	BP 809 ET. 1	Gain knowledge about cosmetic principles and cosmetic excipients		Understand	Deepa M.K
2	BP 809 ET. 2	to understand the building blocks and formulation aspect of skin care, hair care and oral care products		Understand	Deepa M.K
3	BP 809 ET. 3	Learn about the classification of Sunscreens, SPF and also role of herbs as cosmetics and analysis of cosmetics as per BIS		Apply	Deepa M.K
4	BP 809 ET. 4	Know the evaluation methods for cosmetics and the standard instrument used in analysis		Understand	Deepa M.K
5	BP 809 ET. 5	Understand the common problems of skin and hair		Understand	Deepa M.K

Generated at : 13/06/2023 15:06:20







# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha										
Course	B Pharm										
Batch	2018-2022										
Semester	8										
Subject	Cosmetic Science										
	PO1: Pharmacy Knowledge	PO1	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:Environm and sustainabil
BP 809 ET. 1	Point : 2 Justification : Knowledge of excipients and cosmetic principles provide the students with good pharmacy knowledge		Point : 3 Justification : Knowledge of excipients and cosmetic principles are helpful for improving planning ability at all levels while developing a formulation.	Point : 2 Justification : Theoretical knowledge about the cosmetic principles and excipients help the students to apply the information systematically in analysis and solving of problems that may arise during manufacturing and usage of cosmetics					Point : 2 Justification : Seminars taken and assignments submitted benefits the students in making effective presentations.		
BP 809 ET. 2											
BP 809 ET. 3	Point : 3 Justification : Knowledge of herbs in cosmetics provide the students with good pharmacy knowledge		Point : 2 Justification : Knowledge about use of herbs in cosmetics helps to plan about new herbal cosmetic products	Point : 2 Justification : Theoretical knowledge about the role of herbs in cosmetics help the students to solve problems that may arise during manufacture of herbal cosmetics	Point : 1 Justification : Seminars taken and assignments submitted benefits the students in making effective presentations.						
BP 809 ET. 4											
BP 809 ET. 5											
Average Score	2.5		2.5	2	1				2		

Generated at : 17/07/2023 10:49:00



# 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	B Pharm
Batch	2018-2022
Semester	8
Subject	Experimental Pharmacology

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	BP810 ET1	Understand the guidelines and different experimental procedures to ensure the care of animals used in teaching and research purpose		Apply	Arya V S
2	BP810 ET2	Understand the dose calculations and dosage form preparations procedures in animal experiments		Apply	Arya V S
3	BP810 ET3	Analyze various preclinical models used in the screening of CNS activity		Understand	Arya V S
4	BP810 ET4	Analyze the screening models for evaluating a drugs ANS activity		Understand	Arya V S
5	BP810 ET5	Analyze various animal models used in the screening of drugs having activity on CVS		Understand	Arya V S

Generated at : 13/06/2023 15:06:46





# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha										
Course	B Pharm										
Batch	2018-2022										
Semester	8										
Subject	Experimental Pharmacology										
	PO1: Pharmacy Knowledge	PO1	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 and s
BP810 ET1	Point : 3 Justification : Possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy		Point : 2 Justification : Demonstrate effective planning abilities including time management, resource management, delegation skill and organization skill	Point : 1 Justification : Utilize the principles of scientific enquiry ,thinking analytically, clearly and critically while solving problems and making decisions during daily practice	Point : 3 Justification : Learn, select, apply appropriate methods and procedures, resources and modern pharmacy related computed tools with an understanding of limitations	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 : understand, analyze and communicate the value of professional role in society	Point : 2 Justification : honour personal values and apply ethical principles in professional and social context	Point : 2 Justification : communicate effectively with the pharmacy community and the society, write effective reports, make effective presentations and documentation, give and receive clear instructions	Point : 2 Justification : apply reasoning informed by the contextual knowledge to assess societal, health, safety and legal issues and the consequent responsibilities relevant to the profession	Point Justifi under impac profes pharr in soc envirc conte;
BP810 ET2	Point : 2 Justification : Possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy		Point : 2 Justification : Demonstrate effective planning abilities including time management, resource management, delegation skill and organization skill	Point : 2 Justification : Utilize the principles of scientific enquiry ,thinking analytically, clearly and critically while solving problems and making decisions during daily practice	Point : 3 Justification : Learn, select, apply appropriate methods and procedures, resources and modern pharmacy related computed tools with an understanding of limitations	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 : understand, analyze and communicate the value of professional role in society	Point : 2 Justification : honour personal values and apply ethical principles in professional and social context	Point : 2 Justification : communicate effectively with the pharmacy community and the society, write effective reports, make effective presentations and documentation, give and receive clear instructions	Point : 2 Justification : apply reasoning informed by the contextual knowledge to assess societal, health, safety and legal issues and the consequent responsibilities relevant to the profession	Point Justifi under impac profes pharr in soc envirc conte;
BP810 ET3	Point : 2 Justification : Possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy		Point : 2 Justification : Demonstrate effective planning abilities including time management, resource management, delegation skill and organization skill	Point : 3 Justification : Utilize the principles of scientific enquiry ,thinking analytically, clearly and critically while solving problems and making decisions during daily practice	Point : 2 Justification : Learn, select, apply appropriate methods and procedures, resources and modern pharmacy related computed tools with an understanding of limitations	Point : 1 Justification : An ability to lead in terms of team building, planning, motivating and ethically executing professional responsibilities and establish professional identity in society	Point : 3 Justification : understand, analyze and communicate the value of professional role in society	Point : 3 Justification : honour personal values and apply ethical principles in professional and social context	Point : 2 Justification : communicate effectively with the pharmacy community and the society, write effective reports, make effective presentations and documentation, give and receive clear instructions	Point : 2 Justification : apply reasoning informed by the contextual knowledge to assess societal, health, safety and legal issues and the consequent responsibilities relevant to the profession	Point Justifi under impac profes pharr in soc envirc conte;
BP810 ET4	Point : 2 Justification : Possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy		Point : 2 Justification : Demonstrate effective planning abilities including time management, resource management, delegation skill and organization skill	Point : 3 Justification : Utilize the principles of scientific enquiry ,thinking analytically, clearly and critically while solving problems and making decisions during daily practice	Point : 2 Justification : Learn, select, apply appropriate methods and procedures, resources and modern pharmacy related computed tools with an understanding of limitations	Point : 3 Justification : An ability to lead in terms of team building, planning, motivating and ethically executing professional responsibilities and establish professional identity in society	Point : 3 Justification : understand, analyze and communicate the value of professional role in society	Point : 3 Justification : honour personal values and apply ethical principles in professional and social context	Point : 2 Justification : communicate effectively with the pharmacy community and the society, write effective reports, make effective presentations and documentation, give and receive clear instructions	Point : 2 Justification : apply reasoning informed by the contextual knowledge to assess societal, health, safety and legal issues and the consequent responsibilities relevant to the profession	Point Justifi under impac profes pharr in soc envirc conte;
BP810 ET5	Point : 2 Justification : Possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy		Point : 2 Justification : Demonstrate effective planning abilities including time management, resource management, delegation skill and	Point : 2 Justification : Utilize the principles of scientific enquiry ,thinking analytically, clearly and critically while solving problems and	Point : 2 Justification : Learn, select, apply appropriate methods and procedures, resources and modern pharmacy related computed	Point : 3 Justification : An ability to lead in terms of team building, planning, motivating and ethically executing professional responsibilities	Point : 1 Justification : understand, analyze and communicate the value of professional role in society	Point : 3 Justification : honour personal values and apply ethical principles in professional and social context	Point : 2 Justification : communicate effectively with the pharmacy community and the society, write effective reports, make effective presentations and documentation, give and receive clear instructions	Point : 2 Justification : apply reasoning informed by the contextual knowledge to assess societal, health, safety and legal issues and the	Point Justifi under impac profes pharr in soc envirc conte;

	PO1: Pharmacy Knowledge	PO1	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 and s
			organization skill	making decisions during daily practice	tools with an understanding of limitations	and establish professional identity in society				consequent responsibilities relevant to the profession	
Average Score	2.2		2	2.2	2.4	2.2	2.2	2.6	2	2	2

Generated at : 17/07/2023 10:49:20



# 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	B Pharm
Batch	2018-2022
Semester	8
Subject	Advanced Instrumentation Techniques

Sl.No	CO Code	Course Outcome	Description	Bloom Level	Created_by
1	BP 811 ET.1	understand the advanced instruments used and its applications in drug analysis	understand the advanced instruments used and its applications in drug analysis	Understand	Elseena Jose
2	BP 811 ET.2	understand the separation and analysis of drugs	understand the separation and analysis of drugs	Understand	Elseena Jose
3	BP 811 ET.3	understand the calibration of various analytical instruments know analysis of drugs using various analytical instruments.	understand the calibration of various analytical instruments know analysis of drugs using various analytical instruments.	Understand	Elseena Jose

Generated at : 13/06/2023 15:07:20



# Nirmala College of Pharmacy,Muvattupuzha

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

Email : info@nirmalacp.org, Phone : 04852836888

## CO-PO Mapping

Institute	Nirmala College of Pharmacy,Muvattupuzha									
Course	B Pharm									
Batch	2018-2022									
Semester	8									
Subject	Advanced Instrumentation Techniques									
	PO1: Pharmacy Knowledge	PO1	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
BP 811 ET.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
BP 811 ET.2	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
BP 811 ET.3	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		
Average Score	2.66666666666667		2.33333333333333	2.66666666666667	3	2	2.66666666666667	3	1	2

Generated at : 17/07/2023 10:49:40

