



MAHATMA GANDHI VIDYAMANDIR'S
**SAMAJSHRI PRASHANTDADA HIRAY
COLLEGE OF PHARMACY**

Approved by : Pharmacy Council of India, New Delhi. Recognized by : DTE, Mumbai
Exam Code : 1032
Affiliated to : Savitribai Phule Pune University, Pune (CPHN018220). MSBTE (2142) DTE Code : 5205 AISHE Code : C-41859
Accredited by NAAC "B ++" Grade with = CGPA -2.88 in First Cycle. NSS CODE-D-SF-091

2.6.2

Attainment of Programme outcomes and course outcomes are evaluated by the institute



Loknete Vyankatrao Hiray Marg, Malegaon camp, Nashik, Maharashtra - 423105, Tel: (02554) 252583
email : prin.sphpharmacycollege@mgvnsaik.org Website : www.mgvmlgpharmacy.kbhgroup.in

To be a Premier Centre of Pharmacy Education



MAHATMA GANDHI VIDYAMANDIR'S
**SAMAJSHRI PRASHANTDADA HIRAY
COLLEGE OF PHARMACY**

Approved by : Pharmacy Council of India, New Delhi. Recognized by : DTE, Mumbai.
Affiliated to : Savitribai Phule Pune University, Pune (CPHN018220), MSBTE (2142) DTE Code : 5205 AISHE Code : C-41859 Exam Code : 1032
Accredited by NAAC "B ++" Grade with = CGPA -2.88 in First Cycle, NSS CODE-D-SF-091

2.6.2 Attainment of Programme outcomes and course outcomes are evaluated by the institute

Sr. No	Contents	Year
1	Course Outcome subject wise	2023-24
2	CO-PO Mapping subject wise	2023-24
3	Practical Record of COPO	2023-24



Loknete Vyankatrao Hiray Marg, Malegaon camp, Nashik, Maharashtra - 423105, Tel: (02554) 252503
email : prn.sopharmacycollege@mgvnsik.org Website : www.mgvmlgpharmacy.kbhgroup.in

To be a Premier Centre of Pharmacy Education



MAHATMA GANDHI VIDYAMANDIR'S
**SAMAJSHRI PRASHANTDADA HIRAY
COLLEGE OF PHARMACY**

Approved by : Pharmacy Council of India, New Delhi. Recognized by : DTE, Mumbai.
Affiliated to : Savitribai Phule Pune University, Pune (CPHN018220). MSBTE (2142) DTE Code : 5205 AISHE Code : C-41859 Exam Code : 1032
Accredited by NAAC "B ++" Grade with = CGPA -2.88 in First Cycle. NSS CODE-D-SF-091

2.6.2

1. Course Outcome subject wise



Loknete Vyankatrao Hiray Marg, Malegaon camp, Nashik, Maharashtra - 423105, Tel: (02564) 252803
email : prin.sphpharmacycollego@mgvnsaik.org Website : www.mgvmigpharmacy.kbhgroup.in

To be a Premier Centre of Pharmacy Education



MAHATMA GANDHI VIDYAMANDIR'S
**SAMAJSHRI PRASHANTDADA HIRAY
 COLLEGE OF PHARMACY**

Approved by : Pharmacy Council of India New Delhi. Recognized by : DTE, Mumbai
 Affiliated to : Savitribai Phule Pune University, Pune (CPHN018220) MSBTE (2142) DTE Code : 5205 AISHE Code : C-41859 Exam Code : 1032
 Accredited by NAAC "B++" Grade with - CGPA -2.88 in First Cycle, NSS CODE -D-51-091

Class: F.Y.B. Pharm

Sem: I

Subject: Pharmaceutics-I BP103T

Upon Completion of the course students shall ...

CO 103T 1	Know the history of profession of Pharmacy
CO 103T 2	Understand the basics of different dosage forms, Pharmaceutical incompatibilities and Pharmaceutical calculations
CO 103T 3	Explain the professional way of handling the Prescription
CO 103T 4	Use basics to for preparation of various conventional dosage forms

Class: F.Y.B. Pharm

Sem: II

Subject: Pathophysiology BP204T

Upon Completion of the course students shall ...

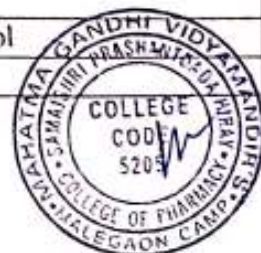
CO BP 204T 1	Describe the etiology and pathogenesis of the selected disease states
CO BP 204T 2	Identify the signs and symptoms of the diseases
CO BP 204T 3	Recognize the various diseases and understanding of its prevention and treatment
CO BP 204T 4	Understand the consequence of diseased organ

Class: F.Y.B. Pharm Subject: Biochemistry (BP209P)

Sem: II

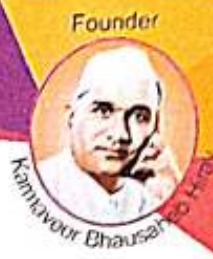
Upon Completion of the course students shall ...

CO 209P 1	Identification tests for Biomolecules
CO 209P 2	classification and structural properties of carbohydrates, proteins, nucleic acids and lipids, glycoproteins and glycolipids
CO 209P 3	Determination of blood Creatinine, blood sugar, serum total cholesterol
CO 209P4	Qualitative analysis of carbohydrates, urine for abnormal constituents



Loknete Vyankatrao Hiray Marg, Malegaon camp, Nashik, Maharashtra - 423105, Tel: (02554) 252563
 email : prin.sphpharmacycollege@mgvnsaik.org Website : www.mgvmlgpharmacy.kbhgroup.in

To be a Premier Centre of Pharmacy Education



MAHATMA GANDHI VIDYAMANDIR'S
**SAMAJSHRI PRASHANTDADA HIRAY
 COLLEGE OF PHARMACY**

Approved by : Pharmacy Council of India, New Delhi. Recognized by : DTE, Mumbai.
 Affiliated to : Savitribai Phule Pune University, Pune (CPHN018220). MSBTE (2142) DTE Code : 5205 AISHE Code : C-41859 Exam Code : 1032
 Accredited by NAAC "B ++" Grade with = CGPA -2.88 in First Cycle, NSS CODE-D-SF-091

Class: Second Year B. Pharm (2019 Pattern)

SEM: III

Subject: Physical Pharmaceutics I, BP302T

Upon Completion of the course students shall...

CO 302T.1	Understand the concept of solubility of drugs, diffusion principles in biological systems and distribution law
CO 302T.2	Investigate and apply various theories, laws and equations related to different states of matter
CO 302T.3	Demonstrate use of physicochemical properties of drugs in the formulation development and evaluation of dosage forms.
CO 302T.4	Distinguish the principles of complexation/ protein binding & to use them for calculations of drug release and stability constant.

Class: Second Year B. Pharm (2019 Pattern)

SEM: III

Subject: Pharmaceutical Microbiology (BP303T)

Upon Completion of the course students shall...

CO 303T.1	Understand methods of identification, cultivation and preservation of various Microorganisms
CO 303T.2	Analyze Learn sterility testing of pharmaceutical products
CO 303T.3	Evaluate To Evaluate the importance and implementation of sterilization in pharmaceutical processing and industry
CO 303T.4	Understand the cell culture technology and its applications in pharmaceutical industries

Class: S.Y.B. Pharm

Sem: IV

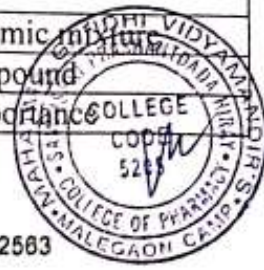
Subject: Pharmaceutical Organic Chemistry III (BP 401T)

Upon Completion of the course students shall ...

CO 401T1	Interpret knowledge on stereo chemical aspects of organic compounds and organic reactions
CO 401T 2	Enlighten methods of racemic modification and resolution of racemic mixtures
CO 401T 3	Understand method of preparation and properties of organic compound
CO 401T 4	Explain chemistry of heterocyclic compounds with medicinal importance

Loknete Vyankatrao Hiray Marg, Malegaon camp, Nashik, Maharashtra - 423105, Tel: (02554) 252583
 email : prin.sphpharmacycollege@mgvnsaik.org Website : www.mgvmlgpharmacy.kbhgroup.in

To be a Premier Centre of Pharmacy Education





MAHATMA GANDHI VIDYAMANDIR'S
**SAMAJSHRI PRASHANTDADA HIRAY
 COLLEGE OF PHARMACY**

Affiliated to : Savitribai Phule Pune University, Pune (CPHN018220), MSBTE (2142) DTE Code : 5205 AISHE Code : C-41859 Exam Code : 1032
 Approved by : Pharmacy Council of India, New Delhi. Recognized by : DTE, Mumbai.
 Accredited by NAAC "B ++" Grade with = CGPA -2.88 in First Cycle, NSS CODE-D-SF-091

Class: Second Year B. Pharm (2019 Pattern)

SEM: IV

Subject: Physical Pharmaceutics II, BP403T

Upon Completion of the course students shall...

CO 403T.1	Categorize dispersed systems with their properties and their role in dosage form.
CO 403T.2	Describe rheological properties with applications and various viscometers to determine viscosity.
CO 403T.3	Summarize various methods to determine particle size, particle shape and specific surface area.
CO 403T.4	Derive Kinetic reactions and rate constant with determination of reaction orders, permeability etc.

Class: S.Y.B. Pharm (2019 Pattern) Subject: Pharmacology-I (BP 404T)

Sem: IV

Upon Completion of the course students shall ...

CO BP 404T 1	Name the different routes of drug administrating, Sources and combined effects of drug and pharmacological actions
CO BP 404T 2	Outline the stages of drug development
CO BP 404T 3	Explain the pharmacokinetics and mechanism of drug action at organ system/sub cellular/macromolecular levels
CO BP 404T 4	Explain the different categories of drugs acting on ANS and CNS, Their pharmacological actions

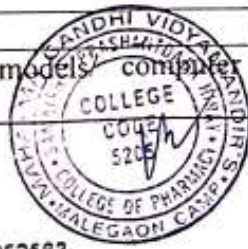
Class: S.Y.B. Pharm

Subject: Pharmacology-I (BP408P)

Sem: IV

Upon Completion of the course students shall ...

CO BP 408P 1	Summarize guidelines for animal experimentations
CO BP 408P 2	Outline various routes of drug administration, methods for blood collection from experimental animals.
CO BP 408P 3	Model for different anesthetics by various methods
CO BP 408P 4	Examine the action of various drugs using preclinical models simulations



Loknete Vyankatrao Hiray Marg, Malegaon camp, Nashik, Maharashtra - 423105, Tel: (02554) 252563
 email : prin.sphpharmacycollege@mgvnsaik.org Website : www.mgvmlgpharmacy.kbhgroup.in

To be a Premier Centre of Pharmacy Education



MAHATMA GANDHI VIDYAMANDIR'S
**SAMAJSHRI PRASHANTDADA HIRAY
COLLEGE OF PHARMACY**

Approved by : Pharmacy Council of India, New Delhi. Recognized by : DTE, Mumbai.
Affiliated to : Savitribai Phule Pune University, Pune (CPHN018220). MSBTE (2142) DTE Code : 5205 AISHE Code : C-41859 Exam Code : 1032
Accredited by NAAC "B ++" Grade with = CGPA -2.88 in First Cycle, NSS CODE-D-SF-091

Class: S.Y.B. Pharm Subject: Medicinal Chemistry I (BP406P) Sem: IV

CO BP 406T 1	Make use of Equipments/instrument with safety measures
CO BP 406T 2	Outline reagent properties, reaction and mechanism of organic compound.
CO BP 406T 3	Synthesized and Purify some medicinally important compounds.
CO BP 406T 4	Determine partition coefficient and ionization constants of organic compounds

Class: Third Year B. Pharm (2019 Pattern)

SEM: V

Subject: Pharmacology- II (BP503T)

Upon Completion of the course students shall...

CO 503T.1	Describe the principles, applications and types of bioassay
CO 503T.2	Explain the pharmacokinetics and mechanism of drug action at organ system/ sub cellular/macromolecular levels
CO 503T.3	Explain the pharmacology of drugs acting on systems
CO 503T.4	Discuss drug mechanisms and their relevance in the treatment of diseases

Class: Third Year B. Pharm Subject: Pharmacology- II (BP507P) SEM: V

Upon Completion of the course students shall...

CO 507P.1	Choose physiological salt solutions for isolated tissue preparations.
CO 507P.2	Demonstrate drug effects using computer models.
CO 507P.3	Conduct experiments on isolated tissue preparation and in vivo studies
CO 507P.4	Interpret the effect of spasmogens and spasmolytics on suitable tissue preparations

Class: Third Year B. Pharm (2019 Pattern)

SEM: V

Subject: Industrial Pharmacy -I (BP502T)

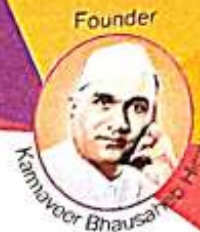
Upon Completion of the course students shall...

CO 502T.1	Illustrate various pharmaceutical dosage forms and their manufacturing techniques
CO 502T.2	Describe various factors to be considered in development of pharmaceutical dosage forms.
CO 502T.3	Formulate solid, liquid and semisolid dosage forms and evaluate them for their quality.
CO 502T.4	Understand and appreciate the influence of pharmaceutical additives and various pharmaceutical dosage forms on the performance of the drug product.



Loknete Vyankatrao Hiray Marg, Malegaon camp, Nashik, Maharashtra - 423105, Tel: (02564) 252583
email : prin.sphpharmacycollege@mgvnsaik.org Website : www.mgvmlgpharmacy.kbhgroup.in

To be a Premier Centre of Pharmacy Education



MAHATMA GANDHI VIDYAMANDIR'S
**SAMAJSHRI PRASHANTDADA HIRAY
COLLEGE OF PHARMACY**

Approved by : Pharmacy Council of India, New Delhi. Recognized by : DTE, Mumbai.
Affiliated to : Savitribai Phule Pune University, Pune (CPHN018220). MSBTE (2142) DTE Code : 5205 AISHE Code : C-41859 Exam Code : 1032
Accredited by NAAC "B ++" Grade with = CGPA -2.88 in First Cycle. NSS CODE-D-SF-091

Class: Third Year B. Pharm (2019 Pattern)

SEM: V

Subject: Pharmaceutical Jurisprudence, BP505T

Upon Completion of the course students shall...

CO 505T.1	Understand the rules and regulations framed and amendments made under drugs and cosmetics act 1940 and regulatory authorities their under.
CO 505T.2	Know constitution of various councils and functions under pharmacy act 1948 with pharmacist registration process.
CO 505T.3	Know Pharmaceutical legislations and their implications.
CO 505T.4	Understand code of ethics during the pharmaceutical practice and IPR.

Class: Third Year B. Pharm (2019 Pattern)

SEM: VI

Subject: Pharmacology- III (BP602T)

Upon Completion of the course students shall...

CO 602T.1	Classify drugs based on their therapeutic utility
CO 602T.2	Explain the principles of toxicology and treatment of poisoning
CO 602T.3	Discuss the significance of biological clock in diseases and chronotherapy
CO 602T.4	Explain the pharmacology of drugs

Class: Third Year B. Pharm Subject: Pharmacology- III (BP608P)

SEM: VI

Upon Completion of the course students shall...

CO 608P.1	Calculate doses for laboratory animals
CO 608P.2	Estimate biochemical parameters in body fluids
CO 608P.3	Demonstrate effect of drugs using computer models
CO 608P.4	Apply statistical methods for interpretation of experimental results



Loknete Vyankatrao Hiray Marg, Malegaon camp, Nashik, Maharashtra - 423105, Tel: (02554) 252663
email : pnn.sopharmacycollege@mgvnsaik.org Website : www.mgvmlgpharmacy.kbhgroup.in

To be a Premier Centre of Pharmacy Education

MALEGAON

MALEGAON CAMP



Founder



MAHATMA GANDHI VIDYAMANDIR'S
**SAMAJSHRI PRASHANTDADA HIRAY
COLLEGE OF PHARMACY**

Affiliated to : Savitribai Phule Pune University, Pune (CPHN018220). MSBTE (2142) DTE Code : 5205 AISHE Code : C-41859 Exam Code : 1032
Approved by : Pharmacy Council of India, New Delhi. Recognized by : DTE, Mumbai.
Accredited by NAAC "B ++" Grade with = CGPA -2.88 in First Cycle, NSS CODE-D-SF-091

Class: T.Y.B. Pharm (2019 Pattern)

Sem: VI

Subject: Medicinal Chemistry III (BP 601T)

Upon Completion of the course students shall...

CO 601T.1	Summarize history of drug design, development, classification and chemistry of Different classes of drugs.
CO 601T.2	Discuss structural activity relationship of different classes of agents
CO 601T.3	Recognize therapeutic uses, adverse effects and recent developments of some agents
CO 601T.4	Write synthetic route of few drugs

Class: T.Y.B. Pharm Subject: Medicinal Chemistry III (606.P) Sem: VI

Upon Completion of the course students shall...

CO 4.8.4.P.1	Make use of various Equipments/instrument and safety measures while working in laboratory
CO4.8.4.P. 2	Outline reagent properties, reaction, mechanism involved in synthesis of organic compounds
CO4.8.4.P.3	Synthesized, purify and Characterized some medicinally important compounds.
CO4.8.4.P.4	Purify solvents using fractional and vacuum distillation

Class: Third Year B. Pharm (2019 Pattern)

SEM: VI

Subject: PHARMACEUTICAL QUALITY ASSURANCE (BP606T)

Upon Completion of the course students shall...

CO 606T.1	Understand and apply the cGMP aspects in a pharmaceutical industry.
CO 606T.2	Describe the importance of documentation
CO 606T.3	Understand the scope of quality certifications applicable to pharmaceutical industries
CO 606T.4	Illustrate the responsibilities of QA & QC departments



Loknete Vyankatrao Hiray Marg, Malegaon camp, Nashik, Maharashtra - 423105, Tel: (02554) 252563
email : prin.sphpharmacycollege@mgvnsaik.org Website : www.mgvmlgpharmacy.kbhgroup.in

To be a Premier Centre of Pharmacy Education



MAHATMA GANDHI VIDYAMANDIR'S
**SAMAJSHRI PRASHANTDADA HIRAY
COLLEGE OF PHARMACY**

Approved by : Pharmacy Council of India, New Delhi. Recognized by : DTE, Mumbai.
Affiliated to : Savitribai Phule Pune University, Pune (CPHN018220). MSBTE (2142) DTE Code : 5205 AISHE Code : C-41859 Exam Code : 1032
Accredited by NAAC "B ++" Grade with = CGPA -2.88 in First Cycle. NSS CODE-D-SF-091

Class: Third Year B. Pharm (2019 Pattern)

SEM: VI

Subject: Pharmaceutical Biotechnology (BP605T)

Upon Completion of the course students shall...

CO 605T.1	Understand the importance of Immobilized enzymes in Pharmaceutical Industries
CO 605T.2	Explain applications genetic engineering in relation to production of pharmaceuticals
CO 605T.3	Elaborate importance of Monoclonal antibodies in Industries
CO 605T.4	Demonstrate the use of microorganisms in fermentation technology

Class: T.Y.B. Pharm

Sem: VI

Subject: Biopharmaceutics and Pharmacokinetics, BP604T

Upon Completion of the course students shall ...

CO 604T 1	Understand the basic concepts in Biopharmaceutics and Pharmacokinetics with their significance with special emphasis on ADME.
CO 604T 2	Calculate the Pharmacokinetic parameters to describe the kinetics of drug absorption, distribution, metabolism, excretion, elimination using plasma drug concentration-time data.
CO 604T 3	Understand the concepts of bioavailability and bioequivalence of drug products and their significance.
CO 604T 4	Understand the concept of dissolution and application of <i>in vitro in vivo</i> correlation in drug product development.



Loknete Vyankatrao Hiray Marg, Malegaon camp, Nashik, Maharashtra - 423105, Tel: (02554) 252563
email : prin.sphpharmacycollege@mgvnsaik.org Website : www.mgvmlgpharmacy.kbhgroup.in

To be a Premier Centre of Pharmacy Education



MAHATMA GANDHI VIDYAMANDIR'S
**SAMAJSHRI PRASHANTDADA HIRAY
COLLEGE OF PHARMACY**

Affiliated to : Savitribai Phule Pune University, Pune (CPHN018220), MSBTE (2142) DTE Code : 5205 AISHE Code : C-41859 Exam Code : 1032
Approved by : Pharmacy Council of India, New Delhi. Recognized by : DTE, Mumbai.
Accredited by NAAC "B ++" Grade with = CGPA -2.88 in First Cycle, NSS CODE-D-SF-091

Class: Final Year B. Pharm (2019 Pattern)

SEM: VII

Subject: Pharmacy Practice (BP503T)

Upon Completion of the course students shall...

CO 703 T.1	Know various drug distribution methods in a hospital
CO 703 T.2	Monitor drug therapy of patient through medication chart review and clinical review
CO 703 T.3	Identify drug related problems
CO 703 T.4	Know pharmaceutical care services

Class: Final Year B. Pharm (2019 Pattern)

SEM: VII

Subject: Industrial Pharmacy –II (BP702T)

Upon Completion of the course students shall...

CO 702T.1	Elaborate the process of pilot plant and scale up of pharmaceutical dosage forms.
CO 702T.2	Understand the process of technology transfer from lab scale to commercial batch
CO 702T.3	Know and relate different Laws and Acts that regulate pharmaceutical industry.
CO 702T.4	Discuss the approval process and regulatory requirements for drug products.

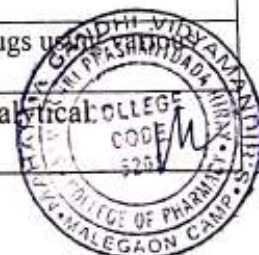
Class: Final Year B. Pharm (2019 Pattern)

SEM: VII

Subject: Instrumental Method of Analysis, BP701T

Upon Completion of the course students shall...

CO 701T.1	Illustrate the interaction of matter with electromagnetic radiations and justify its applications in drug analysis.
CO 701T.2	Classify the chromatographic separation methods and choose appropriate technique for analysis of drugs.
CO 701T.3	Design methods for performing quantitative & qualitative analysis of drugs using analytical instruments.
CO 701T.4	Emphasizes on theoretical and practical knowledge on modern analytical instruments that are used for drug testing..



Loknete Vyankatrao Hiray Marg, Malegaon camp, Nashik, Maharashtra - 423105, Tel: (02554) 252583
email : prin.sphpharmacycollege@mgvnsaik.org Website : www.mgvmlgpharmacy.kbhgroup.in

To be a Premier Centre of Pharmacy Education



MAHATMA GANDHI VIDYAMANDIR'S
**SAMAJSHRI PRASHANTDADA HIRAY
COLLEGE OF PHARMACY**

Approved by : Pharmacy Council of India, New Delhi. Recognized by : DTE, Mumbai.
Affiliated to : Savitribai Phule Pune University, Pune (CPHN018220). MSBTE (2142) DTE Code : 5205 AISHE Code : C-41859 Exam Code : 1032
Accredited by NAAC "B ++" Grade with = CGPA -2.88 in First Cycle, NSS CODE-D-SF-091

SEM: VII

Class: Final Year B. Pharm (2019 Pattern)

Subject: Instrumental Method of Analysis, BP705P

Upon Completion of the course students shall...

CO 705P.1	Explain the different types of instrumental analytical techniques
CO 705P.2	Understand the principles and instrumentation of UV-VIS, Fluorimetry, Atomic absorption, Flame photometry and Nepheloturbidimetry
CO 705P.3	Utilize the of UV-VIS, Fluorimetry, Atomic absorption, Flame photometry and Nepheloturbidimetry
CO 705P.4	Apply appropriate safety measures while handling chemicals, apparatus and different analytical instruments



Loknete Vyankatrao Hiray Marg, Malegaon camp, Nashik, Maharashtra - 423105, Tel: (02554) 252563
email : prin.sphpharmacycollege@mgvnsaik.org Website : www.mgvmlgpharmacy.kbhgroup.in

To be a Premier Centre of Pharmacy Education



MAHATMA GANDHI VIDYAMANDIR'S
**SAMAJSHRI PRASHANTDADA HIRAY
COLLEGE OF PHARMACY**

Approved by : Pharmacy Council of India, New Delhi. Recognized by : DTE, Mumbai
Affiliated to : Savitribai Phule Pune University, Pune (CPHND18220), MSBTE (2142) DTE Code : 5205 AISHE Code : C-41859 Exam Code : 1032
Accredited by NAAC "B ++" Grade with = CGPA -2.88 in First Cycle, NSS CODE-D-SF-091

2.6.2

2. CO-PO mapping subject wise



Loknete Vyankatrao Hiray Marg, Malegaon camp, Nashik, Maharashtra - 423105, Tel: (02554) 252563
email : prin.sphpharmacycollege@mgvnsaik.org Website : www.mgvmlgpharmacy.kbhgroup.in

To be a Premier Centre of Pharmacy Education



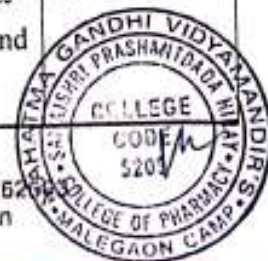
MAHATMA GANDHI VIDYAMANDIR'S SAMAJSHRI PRASHANTDADA HIRAY COLLEGE OF PHARMACY

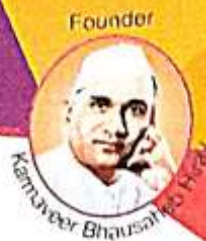
Approved by : Pharmacy Council of India, New Delhi. Recognized by : DTE, Mumbai
 Exam Code : 1032
 Affiliated to : Savitribai Phule Pune University, Pune (CPHND10220), MSBTE (2142) DTE Code : 5205 AIDHE Code : C-41859
 Accredited by NAAC "B++" Grade with - CGPA -2.88 in First Cycle, NSS CODE-D-SF-091

Name of Teaching Faculty		: Prof. Aafaque Yunusi	
Name of College : MGVS Samajshri Prashantdada Hiray College of Pharmacy, Malegaon, Dist: Nashik			
Course/Subject Name : B. Pharm/First Year B. Pharm, Sem I, Pharmaceutics I, 2019 Pattern, BP103T, 2023-2024			
L-T-P		Type	Theory
			Credit
			4
Course overview	This course is designed to impart a fundamental knowledge on the preparatory pharmacy with arts and science of preparing the different conventional dosage forms.		
Course outcome	CO No.	Cognitive level	Upon completion of the course student shall be able to
	CO103:01	Knowledge	Know the history of profession of Pharmacy
	CO103:02	Comprehension	Understand the basics of different dosage forms, Pharmaceutical incompatibilities and Pharmaceutical calculations
	CO103: 03	comprehension	Explain the professional way of handling the Prescription
CO103: 04	Apply	Use basics to for preparation of various conventional dosage forms	
Course coverage [Module wise topic list]	Module No.	Module Name and Module Overview	
	Hours		
	01	Historical background and development of profession of pharmacy: History of profession of Pharmacy in india in relation to pharmacy education, industry and organization, Pharmacy as a career.	
	02	Dosage forms: Introduction to dosage forms, classification and definitions	
	03	Prescription: Definition, Parts of prescription, handling of Prescription 3 and Errors in prescription.	
04	Posology: Definition, Factors affecting posology. Pediatric dose calculations based on age, body weight and body surface area.		

Loknete Vyankatrao Hiray Marg, Malegaon camp, Nashik, Maharashtra - 423105, Tel: (02554) 252200
 email : prn.sphpharmacycollege@mgvnsaik.org Website : www.mgvmigpharmacy.kbhgroup.in

To be a Premier Centre of Pharmacy Education





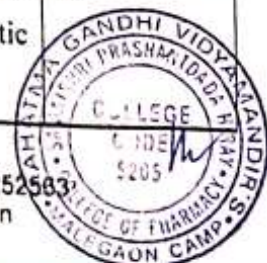
MAHATMA GANDHI VIDYAMANDIR'S
**SAMAJSHRI PRASHANTDADA HIRAY
COLLEGE OF PHARMACY**

Approved by : Pharmacy Council of India, New Delhi. Recognized by : DTE, Mumbai.
Affiliated to : Savitribai Phule Pune University, Pune (CPHN018220), MSBTE (2142) DTE Code : 5205 AISHE Code : C-41859 Exam Code : 1032
Accredited by NAAC "B ++" Grade with = CGPA -2.88 in First Cycle, NSS CODE-D-SF-091

05	Pharmaceutical calculations: Weights and measures- Imperial & Metri system, Calculations involving percentage solutions, allegation, proof spirit and isotonic solutions based on freezing point and molecular weight	04
06	Powders: Definition, classification, advantages and disadvantages, Simple & compound powders-official preparations, dusting powders, effervescent, efflorescent and hygroscopic powders, eutectic mixtures. Geometric dilutions	03
07	Liquid dosage forms: Advantages and disadvantages of liquid dosage forms. Excipients used in formulation of liquid dosage forms, Solubility enhancement techniques	03
08	Monophasic liquids Definitions and preparations of Gargles, Mouthwashes, Throat Paint, Eardrops, Nasal drops, Enemas, Syrups, Ellixirs, Liniments and Lotions	03
09	Biphasic Liquids Suspensions: Definition, advantages and disadvantages, classifications, Preparation of suspensions; Flocculated and Deflocculated suspension & stability problems and methods to overcome	04
10	Emulsions: Definition, classification, emulsifying agent, test for the identification of type of Emulsion, Methods of preparation & stability problems and methods to overcome	03
11	Suppositories: Definition, types, advantages and disadvantages, types of bases, methods of preparations. Displacement value & calculations, evaluation of suppositories.	04
12	Pharmaceutical incompatibilities Definition, classification, physical, chemical and therapeutic incompatibilities with examples	04

Loknete Vyankatrao Hiray Marg, Malegaon camp, Nashik, Maharashtra - 423105, Tel: (02554) 252583
email : prin.sphpharmacycollege@mgynasik.org Website : www.mgvmlgpharmacy.kbhgroup.in

To be a Premier Centre of Pharmacy Education





**MAHATMA GANDHI VIDYAMANDIR'S
SAMAJSRI PRASHANTDADA HIRAY
COLLEGE OF PHARMACY**

Approved by : Pharmacy Council of India, New Delhi. Recognized by : DTE, Mumbai.
 Affiliated to : Savitribai Phule Pune University, Pune (CPHN018220). MSBTE (2142) DTE Code : 5205 AISHE Code : C-41859 Exam Code : 1032
 Accredited by NAAC "B ++" Grade with = CGPA -2.88 in First Cycle. NSS CODE-D-SF-091

	13	Semisolid dosage forms: Definitions, classification, mechanisms and factors influencing dermal penetration of drugs Preparation of ointments, pastes, creams and gels. Excipients used in semi-solid dosage forms. Evaluation of semi-solid dosages forms	07									
Course level Problem	CO No. 03	To know about Handling the prescription, Practical based learning or learning by doing required which is not feasible at first year of course level.										
Assessment methodology	Summative and Formative Assessment (Direct Method)											
Course matrix	Course Outcome (CO's)	Program Outcomes (PO's)										
		POs										
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
	CO1	3	1	1	1	1	2	3	2	2	1	3
	CO2	3	3	3	2	3	2	3	3	3	3	3
	CO3	3	3	3	3	2	3	3	3	3	1	3
	CO4	3	3	3	3	3	3	3	2	3	2	3
	Average	12/12	10/12	10/12	09/12	09/12	10/12	12/12	10/12	11/12	7/12	12/12
Percentage	100	83	83	75	75	83	100	83	92	58	100	
Average	3	3	3	2	2	3	33	3	3	2	3	
1: Slight (Low) , 2: Moderate (Medium), 3: Substantial (High)												



Loknete Vyankatrao Hiray Marg, Malegaon camp, Nashik, Maharashtra - 423105, Tel: (02554) 252563
 email : prin.sphpharmacycollege@mgvnsaik.org Website : www.mgvmlgpharmacy.kbhgroup.in

To be a Premier Centre of Pharmacy Education



MAHATMA GANDHI VIDYAMANDIR'S
**SAMAJSHRI PRASHANTDADA HIRAY
COLLEGE OF PHARMACY**

Approved by : Pharmacy Council of India, New Delhi. Recognized by : DTE, Mumbai
Affiliated to : Savitribai Phule Pune University, Pune (CPIIND18220). MSBTE (2142) DTE Code : 5205 AISHE Code : C-41859 Exam Code : 1032
Accredited by NAAC "B++" Grade with ~ CUIPA -2.88 in First Cycle. NSS CODE-D-SF-091

Pos:

- 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



Loknete Vyankatrao Hiray Marg, Malegaon camp, Nashik, Maharashtra - 423105, Tel: (02554) 252563
email : pnn.sphpharmacycollege@mgvnsik.org Website : www.mgvmigpharmacy.kbhgroup.in

To be a Premier Centre of Pharmacy Education



**Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray College of Pharmacy**

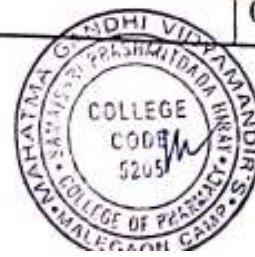
*To be a Premier Centre of Pharmacy Education,
Approved by A.I.C.T.E., P.C.I. (New Delhi), D.T.E. (Mumbai) &
State Govt. of Maharashtra, AISHE Code - C-41859*



Tele Fax: (02554) 252563 Email: prin@spharmacycollege.org,mgvnsaik.org Website: www.mgvnlpharmacy.khgroup.in

Course Outcomes and Mapping with Program Outcomes

Name of Teaching Faculty		: Prof. Leena Pandharinath Deore			
Name of College : MGVS Samajshri Prashantdada Hiray College of Pharmacy, Malegaon, Dist: Nashik					
Course/Subject Name: B. Pharm/Second Year B. Pharm, Sem III, Pattern: 2019					
Subject and Subject Code: Physical Pharmaceutics I, BP302T					
L-T-P		Type	Theory	Credit	4
Course overview	This subject is intended to impart the various physical and physicochemical properties, and principles involved in dosage forms/formulations. the subject help the student to get a better insight into various areas of formulation research and development, and stability studies of pharmaceutical dosage forms.				
Course outcome	CO No.	Cognitive level	Upon completion of the course student shall be able to		
	CO302: 01	Understand (L2)	Understand the concept of solubility of drugs, diffusion principles in biological systems and distribution law		
	CO302: 02	Apply (L3) Analyze (L4)	Investigate and apply various theories, laws and equations related to different states of matter		
	CO302: 03	Understand (L2) Evaluate(L5)	Demonstrate use of physicochemical properties of drugs in the formulation development and evaluation of dosage forms.		
	CO302: 04	Understand (L2) Apply (L4)	Distinguish the principles of complexation/ protein binding & to use them for calculations of drug release and stability constant.		
Course coverage [Module wise topic list]	Module No.	Module Name and Module Overview			Lecture Hours
	01	Solubility of drugs: mechanisms, factors, diffusion principles in biological systems.			03
	02	Solubility of gas in liquids, solubility of liquids in liquids, Solubility of Solids in liquids (Binary solutions, ideal solutions with respect to their colligative properties) and applications.			05
	03	Partially miscible liquids (One, two and three component systems, ternary phase diagram. Distribution law, its limitations.			04
	04	States of Matter State of matter			03





**Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray College of Pharmacy**



To be a Premier Centre of Pharmacy Education,
Approved by A.I.C.T.E., P.C.I. (New Delhi), D.T.E. (Mumbai) &
State Govt. of Maharashtra, AISHE Code - C-41859

Tele Fax: (02554) 252563 Email: prn.sphpharmacycollege@mgvnsak.org Website: www.mgvnlpharmacy.khgroup.in

05	aerosols- inhalers	01
06	Properties of states of matter	04
07	Physicochemical properties of drug molecules	02
08	Surface and interfacial phenomenon	02
09	Methods of measurement of surface & interfacial tensions	02
10	Spreading coefficient, adsorption at liquid interfaces, surface active agents, HLB Scale, solubilisation, detergency, adsorption at solid interface.	04
11	Introduction, Classification of Complexation,	03
12	Applications, methods of analysis	02
13	protein binding, Complexation and drug action	03
14	Sorensen's pH scale, pH determination (electrometric and calorimetric)	04
15	applications of buffers, buffers in pharmaceutical and biological systems, buffered isotonic solutions.	03

Course level	CO302: 02	Classification of Surfactant, Concept of wettability, concept of critical micellar concentration.
---------------------	-----------	---

Assessment methodology	Summative and Formative Assessment (Direct Method)	
-------------------------------	--	--

Course Outcome (CO's)	Program Outcomes (PO's)										
	POs										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	3	2	2	2	3	2	2	3	2	3
CO2	3	2	2	2	2	3	3	3	2	3	3
CO3	3	3	3	2	2	3	2	3	3	3	3
CO4	3	2	2	2	1	2	2	2	2	2	3
Average	12/12	10/12	9/12	8/12	7/12	11/12	9/12	10/12	10/12	10/12	12/12
Percentage	100	83.33	75	66.66	58.33	91.66	75	83.33	83.33	83.33	100
Average	3	2.5	2.25	2.0	1.75	2.75	2.25	2.5	2.5	2.5	





**Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray College of Pharmacy**



*To be a Premier Centre of Pharmacy Education,
Approved by A.I.C.T.E., P.C.I. (New Delhi), D.T.E. (Mumbai) &
State Govt. of Maharashtra, AISHE Code - C-41859*

Tele Fax: (02554) 252563 Email: prin@spharmacycollege.org Website: www.mgvmlgpharmacy.khgrwp.in

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

Pos:

- 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

Criteria for CO attainment:

1. If COPO mapping average is above 80%, it is considered as Attainment Level 3.
2. If COPO mapping average is above 50% and less than 80%, it is considered as Attainment Level 2.
3. If COPO mapping average is less than 50%, it is considered as Attainment Level 1.

S.Y. B. Pharm, Sem-III, 2019 Pattern												Average
Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	
CO302 T	3	2.5	2.25	2.0	1.75	2.75	2.25	2.5	2.5	2.5	3	2.45 (81.82 %)

Attainment Level 3- Substantial (High)





**Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray College of Pharmacy**

*To be a Premier Centre of Pharmacy Education,
Approved by A.I.C.T.E., P.C.I. (New Delhi), D.T.E. (Mumbai) &
State Govt. of Maharashtra, AISHE Code - C-41859*



Tele Fax: (02554) 252563 Email: prin.spharmacycollege@mgvnsaik.org Website: www.mgvnlpharmacy.kbhgroup.in

Course Outcomes and Mapping with Program Outcomes

Name of Teaching Faculty		: Prof. Leena Pandharinath Deore			
Name of College : MGVS Samajshri Prashantdada Hiray College of Pharmacy, Malegaon, Dist: Nashik					
Course/Subject Name: B. Pharm/Second Year B. Pharm, Sem IV, Pattern: 2019					
Subject and Subject Code: Physical Pharmaceutics II, BP403T					
L-T-P		Type	Theory	Credit	4
Course overview	This subject includes various physicochemical properties of drug and excipient molecules in designing the dosage forms, the principles of chemical kinetics, behavior and mechanism of drugs and excipients in the formulation development and evaluation of dosage forms.				
Course outcome	CO No.	Cognitive level	Upon completion of the course student shall be able to		
	CO403: 01	Understand (L2) Analyze (L4)	Categorize dispersed systems with their properties and their role in dosage form.		
	CO403: 02	Knowledge (L1) Understand (L2)	Describe rheological properties with applications and various viscometers to determine viscosity.		
	CO403: 03	Understand (L2)	Summarize various methods to determine particle size, particle shape and specific surface area.		
	CO403: 04	Evaluate (L5)	Derive Kinetic reactions and rate constant with determination of reaction orders, permeability etc.		
Course coverage [Module wise topic list]	Module No.	Module Name and Module Overview			Lecture Hours
	01	Colloidal dispersions: Classification of dispersed systems & their properties			03
	02	Optical, kinetic & electrical properties. Effect of electrolytes, coacervation, peptization & protective action.			04
	03	Rheology: Newtonian systems, law of flow			02
	04	Non-Newtonian systems			03
	05	determination of viscosity, capillary, falling sphere, rotational viscometers			03
	06	Deformation of solids: Plastic and elastic deformation, Heckel equation, Stress, Strain, Elastic			02
	07	Coarse dispersion: Suspension, interfacial properties of suspended particles, settling in suspensions, formulation of flocculated and deflocculated suspensions.			04





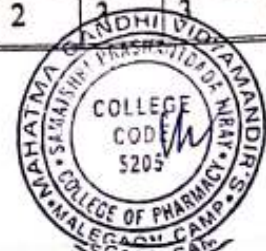
**Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray College of Pharmacy**

*To be a Premier Centre of Pharmacy Education,
Approved by A.I.C.T.E., P.C.I. (New Delhi), D.T.E. (Mumbai) &
State Govt. of Maharashtra, AISHE Code - C-41859*



Tele Fax: (02554) 252563 Email: prin.sph@pharmacycollegeatmgvsnarik.org Website: www.mgvmhgpharmacy.khgroup.in

	08	Emulsions and theories of emulsification, microemulsion and multiple emulsions, Stability of emulsions, preservation of emulsions, rheological properties of emulsions and emulsion formulation by HLB method	06									
	09	Micromeretics: Particle size and distribution	02									
	10	Methods for determining particle size, methods for determining surface area	03									
	11	Derived properties of powders, porosity, packing arrangement, densities, bulkiness & flow properties.	03									
	12	Drug stability: Reaction kinetics: zero, pseudo-zero, first & second order (complex reaction: reversible, parallel and side reactions)	03									
	13	Determination of reaction order	01									
	14	Physical and chemical factors influencing the chemical degradation of pharmaceutical product (Simple numerical problems).	02									
	15	Stabilization of medicinal agents against common reactions like hydrolysis & oxidation.	02									
	16	Accelerated stability testing in expiration dating of pharmaceutical dosage forms. Photolytic degradation and its prevention.	02									
Course level	CO403: 02	Identification test for emulsion, stability problems of emulsion										
Problem	Summative and Formative Assessment (Direct Method)											
Assessment methodology	Summative and Formative Assessment (Direct Method)											
Course matrix	Course Outcome (CO's)	Program Outcomes (PO's)										
		POs										
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
	CO1	3	3	3	2	2	2	3	2	2	2	3
	CO2	3	3	2	3	2	3	3	2	2	3	3
CO3	3	3	3	2	3	2	3	2	2	2	3	





**Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray College of Pharmacy**



To be a Premier Centre of Pharmacy Education,
Approved by A.I.C.T.E., P.C.I. (New Delhi), D.T.E. (Mumbai) &
State Govt. of Maharashtra, AISHE Code - C-41859

Tele Fax: (02554) 252563 Email: prin_spharmacycollege@mpvnask.org Website: www.mgvmlgpharmacy.kbhgroup.in

CO4	3	3	2	2	1	1	3	2	3	3	3
Average	12	12/ /12	10/1 2	9/12	8/1 2	8/12	12/1 2	8/12	9/12	11/1 2	12/12
Percentage	100	100	83.3 3	75	66. 66	66.6 6	100	66.6 6	75	91.6 6	100
Average	3	3	2.5	2.25	2	2	3	2	2.25	2.75	3
1: Slight (Low) , 2: Moderate (Medium), 3: Substantial (High)											

Pos:

- 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

Criteria for CO attainment:

1. If COPO mapping average is **above 80%**, it is considered as **Attainment Level 3**.
2. If COPO mapping average is **above 50% and less than 80%**, it is considered as **Attainment Level 2**.
3. If COPO mapping average is **less than 50%**, it is considered as **Attainment Level 1**.

S.Y. B. Pharm, Sem-IV, 2019 Pattern												Average
Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	
CO403 T	3	3	2.5	2.25	2	2	3	2	2.25	2.75	3	2.52 (84.09%)

Attainment Level 3- Substantial (High)





**Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray College of Pharmacy**

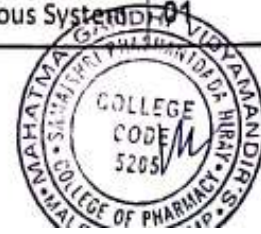
*To be a Premier Centre of Pharmacy Education,
Approved by A.I.C.T.E., P.C.I. (New Delhi), D.T.E. (Mumbai) &
State Govt. of Maharashtra, AISHE Code - C-41859*



Tele Fax: (02554) 252563 Email: prashantdada@mgv.ac.in Website: www.mgv.ac.in

Course Outcomes and Mapping with Program Outcomes

Name of Teaching Faculty		: Prof. Vinod Rajaram Patil		
Name of College : MGVS Samajshri Prashantdada Hiray College of Pharmacy, Malegaon, Dist: Nashik				
Course/Subject Name : B. Pharm/Second Year B. Pharm, Sem IV, Pattern: 2019				
Subject and Subject Code: Pharmacology-I, BP404T				
L-T-P		Type	Theory	
			Credit 4	
Course overview	The main purpose of the subject is to understand what drugs do to the living organisms and how their effects can be applied to therapeutics.			
Course outcome	CO No.	Cognitive level	Upon completion of the course student shall be able to	
	CO404: 01	Remember (L1)	Name the different routes of drug administrating, Sources and combined effects of drug and pharmacological actions	
	CO404: 02	Understand (L2) Apply (L3)	Outline the stages of drug development	
	CO404: 03	Understand (L2) Apply (L3)	Explain the pharmacokinetics and mechanism of drug action at organ system/sub cellular/macromolecular levels	
	CO404: 04	Understand (L2) Apply (L3)	Explain the different categories of drugs acting on ANS and CNS, Their pharmacological actions	
Course coverage (Module wise topic list)	Module No.	Module Name and Module Overview		Lecture Hours
	01	Introduction to Pharmacology		01
	02	Nature and source of drugs, Essential drugs concept and Routes of drug administration		03
	03	Pharmacokinetics (Absorption, Distribution, Metabolism and Excretion of drugs.)		05
	04	Pharmacodynamics: Principles and mechanisms of drug action.		03
	05	Adverse drug reactions:		02
	06	Drug interactions:		03
	07	Drug discovery and clinical evaluation of new drugs:		03
	08	Pharmacology of drugs acting on Peripheral Nervous System		01





**Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray College of Pharmacy**

To be a Premier Centre of Pharmacy Education,
Approved by A.I.C.T.E., P.C.I. (New Delhi), D.T.E. (Mumbai) &
State Govt. of Maharashtra, AISHE Code - C-41859



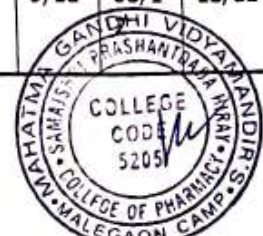
Tele Fax: (02554) 252563 Email: prn.sphpharmacycollege@mgvnsik.org Website: www.mgvmlgpharmacy.kbhgroup.in

09	Local anaesthetic agents.	02
10	Drugs used in myasthenia gravis and glaucoma	02
11	Pharmacology of drugs acting on central nervous system: Sedatives, Hypnotics and Centrally acting muscle relaxants	03
12	Anti-epileptics	02
13	Alcohol and Disulfiram	01
14	Psychopharmacological agents: Antipsychotics, Antidepressants, Anti-anxiety agents, anti-manics and Hallucinogens	05
15	Pharmacology of drugs acting on endocrine system Insulin, Oral Hypoglycemic agents and glucagon. Thyroid hormones- analogues and their inhibitors, Hormones regulating plasma calcium level- Parathormone, Calcitonin and Vitamin-D.	04
16	Drugs used in Parkinson's disease and Alzheimer's disease	02
17	CNS stimulants and Nootropics)	02

Course level	CO404: 04	To know pathophysiology of disease and disorders
Problem		

Assessment methodology	Summative and Formative Assessment (Direct Method)
------------------------	--

Course matrix	Course Outcome (CO's)	Program Outcomes (PO's)										
		POs										
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
	CO1	3	2	3	3	2	2	2	2	3	2	3
	CO2	3	3	3	1	1	2	3	2	1	2	3
	CO3	3	3	3	2	2	2	3	2	2	2	3
	CO4	3	2	2	2	1	2	2	2	3	2	3
	Average	12/12	10/12	11/12	08/12	6/12	08/12	10/12	8/12	9/12	08/12	12/12





**Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray College of Pharmacy**



To be a Premier Centre of Pharmacy Education,
Approved by A.I.C.T.E., P.C.I. (New Delhi), D.T.E. (Mumbai) &
State Govt. of Maharashtra, AISHE Code - C-41859

Tele Fax: (02554) 252563 Email: prin_sph@pharmacycollege.org Website: www.mgvmlgpharmacy.khggroup.in

Percentage	100	83.33	91.66	66.66	50.00	66.66	83.33	66.66	75	66.66	100
Average	3	2.5	2.75	2.0	1.5	2.0	2.50	2.0	2.25	2.0	3
1: Slight (Low) , 2: Moderate (Medium), 3: Substantial (High)											

Pos:

- 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

Criteria for CO attainment:

1. If COPO mapping average is above 80%, it is considered as Attainment Level 3.
2. If COPO mapping average is above 50% and less than 80%, it is considered as Attainment Level 2.
3. If COPO mapping average is less than 50%, it is considered as Attainment Level 1.

T.Y. B. Pharm, Sem-VI, 2019 Pattern												Average
Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	
COS03T	3	2.5	2.75	2.0	1.5	2.0	2.50	2.0	2.25	2.0	3	2.31 (77.27%)

Attainment Level 2- Moderate (Medium)

Prof. V. R. Patil
(Subject Incharge)

Dr. S. K. Mahajan
(Vice Principal)

Dr. S. R. Tambe
(Principal)
PRINCIPAL
Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray
College of Pharmacy
LVH Marg, Malegaon Camp
Dist. Nashik 423185





**Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray College of Pharmacy**

*To be a Premier Centre of Pharmacy Education,
Approved by A.I.C.T.E., P.C.I. (New Delhi), D.T.E. (Mumbai) &
State Govt. of Maharashtra, AISHE Code - C-41859*



Tele Fax: (02554) 252563 Email: prin.sph@pharmacycollegeofmgvnsaik.org Website: www.mgvnlpharmacykhgroup.in

Course Outcomes and Mapping with Program Outcomes

Name of Teaching Faculty : Prof. Leena Pandharinath Deore			
Name of College : MGV'S Samajshri Prashantdada Hiray College of Pharmacy, Malegaon, Dist: Nashik			
Course/Subject Name: B. Pharm/Third Year B. Pharm, Sem V, Pattern: 2019			
Subject and Subject Code: Pharmaceutical Jurisprudence, BP505T			
L-T-P		Type	Theory
		Credit	4
Course overview	This subject is intended to impart to impart basic knowledge on important legislations related to the profession of pharmacy in India. The regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals.		
Course outcome	CO No.	Cognitive level	Upon completion of the course student shall be able to
	CO505: 01	Understand (L2)	Understand the rules and regulations framed and amendments made under drugs and cosmetics act 1940 and regulatory authorities their under.
	CO505: 02	Understand (L2)	Know constitution of various councils and functions under pharmacy act 1948 with pharmacist registration process.
	CO505: 03	Understand (L2) Apply (L3)	Know Pharmaceutical legislations and their implications.
	CO505: 04	Understand (L2) Apply(L3)	Understand code of ethics during the pharmaceutical practice and IPR.
Course coverage [Module wise topic list]	Module No.	Module Name and Module Overview	
	01	Drugs and Cosmetics Act, 1940 and its rules 1945: Objectives, Definitions, Legal definitions of schedules to the Act and Rules to Import of drugs.	
	02	Manufacture of drugs – Prohibition of manufacture and sale of certain drugs, Conditions for grant of license and conditions of license for manufacture of drugs, Manufacture of drugs for test, examination and analysis, manufacture of new drug.	
	03	loan license and repacking license.	
	04	Detailed study of Schedule G, H, M, N, P, T, U, V, X, Y, Part XII B, Sch F & DMR (OA)	
	05	Sale of Drugs – Wholesale, Retail sale and restricted license. Offences and penalties	
	06	Labeling & packing of drugs, List of permitted colors. Offences and penalties.	
	07	Administration of the Act and Rules	
	08	Pharmacy Act –1948	
	09	Medicinal and Toilet Preparation Act –1955	
	10	Narcotic Drugs and Psychotropic substances Act-1985 and Rules	
11	Study of Salient Features of Drugs and Magic Remedies Act		
		Lecture Hours	
		04	
		05	
		01	
		03	
		01	
		02	
		04	
		03	
		03	
		04	
		02	





**Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray College of Pharmacy**

To be a Premier Centre of Pharmacy Education,
Approved by A.I.C.T.E., P.C.I. (New Delhi), D.T.E. (Mumbai) &
State Govt. of Maharashtra, AISHE Code - C-41859



Tele Fax: (02554) 252563 Email: prin_sphpharmacycollege@mgvnsk.org Website: www.mgvnlpharmacy.kbhgroup.in

		and its rules										
	12	Prevention of Cruelty to animals Act-1960	04									
	13	National Pharmaceutical Pricing Authority	02									
	14	Pharmaceutical Legislations	01									
	15	Code of Pharmaceutical ethics	02									
	16	Medical Termination of Pregnancy Act	01									
	17	Right to Information Act	01									
	18	Introduction to Intellectual Property Rights (IPR)	02									
Course level	CO505: 02	Patent filing process										
Problem												
Assessment methodology	Summative and Formative Assessment (Direct Method)											
Course matrix	Course Outcome (CO's)	Program Outcomes (PO's)										
		POs										
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
	CO1	3	2	2	1	2	2	3	2	3	3	3
	CO2	3	2	3	1	2	3	3	2	3	3	3
	CO3	3	3	2	1	2	3	3	2	3	3	3
	CO4	3	2	3	1	2	3	3	2	3	3	3
	Average	12/12	9/12	10/12	4/12	6/12	11/12	12/12	8/12	12/12	12/12	12/12
	Percentage	100	75	83.33	33.33	50	91.66	100	66.66	100	100	100
	Average	3	2.25	2.5	1	1.5	2.75	3	2	3	3	3
	1: Slight (Low) , 2: Moderate (Medium), 3: Substantial (High)											

Pos:

- 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





**Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray College of Pharmacy**

To be a Premier Centre of Pharmacy Education.
Approved by A.I.C.T.E., P.C.E. (New Delhi), D.T.E. (Mumbai) &
State Govt. of Maharashtra, AISHE Code - C-41859



Tele Fax: (02554) 252563 Email: prin_sph@pharmax.collegeofmgvnsaidi.org Website: www.mg-vnsaidipharmacy.khigroup.in

Criteria for CO attainment:

1. If COPO mapping average is above 80%, it is considered as **Attainment Level 3.**
2. If COPO mapping average is above 50% and less than 80%, it is considered as **Attainment Level 2.**
3. If COPO mapping average is less than 50%, it is considered as **Attainment Level 1.**

T.Y. B. Pharm, Sem-V, 2019 Pattern												Average
Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	
CO505T	3	2.25	2.5	1	1.5	2.75	3	2	3	3	3	2.45 (81.82 %)

Attainment Level 3- Substantial (High)





**Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray College of Pharmacy**

*To be a Premier Centre of Pharmacy Education,
Approved by A.I.C.T.E., P.C.I. (New Delhi), D.F.E. (Mumbai) &
State Govt. of Maharashtra, AISHE Code - C-41859*



Tele Fax: (02554) 252563 Email: prin.sph@pharmacycollege.mgvsnashik.org Website: www.mgvsnpharmacy.khgroup.in

Course Outcomes and Mapping with Program Outcomes

Name of Teaching Faculty		: Prof. Leena Pandharinath Deore		
Name of College : MGV'S Samajshri Prashantdada Hiray College of Pharmacy, Malegaon, Dist: Nashik				
Course/Subject Name: B. Pharm/Third Year B. Pharm, Sem VI, Pattern: 2019				
Subject and Subject Code: Pharmaceutical Biotechnology, BP605T				
L-T-P	Type	Theory	Credit 4	
Course overview	This subject impart scientific application of biotechnology in the field of genetic engineering, medicine and fermentation technology. Knowledge related to new biological revolutions in diagnosis, prevention and cure of diseases. Biotechnology has already produced transgenic crops and animals and the future promises lot more.			
Course outcome	CO No.	Cognitive level	Upon completion of the course student shall be able to	
	CO605: 01	Understand (L2)	Understand the importance of Immobilized enzymes in Pharmaceutical Industries	
	CO605: 02	Knowledge (L1) Evaluate (L5)	Explain applications genetic engineering in relation to production of pharmaceuticals	
	CO605: 03	Understand (L2) Create (L6)	Elaborate importance of Monoclonal antibodies in Industries	
	CO605: 04	Understand (L2)	Demonstrate the use of microorganisms in fermentation technology	
Course coverage [Module wise topic list]	Module No.	Module Name and Module Overview		Lecture Hours
	01	Brief introduction to Biotechnology with reference to Pharmaceutical Sciences		01
	02	Enzyme Biotechnology, biosensors, Protein Engineering.		04
	03	Production of Enzymes- General consideration - Amylase, Catalase, Peroxidase, Lipase, Protease, Penicillinase Basic principles of genetic engineering.		05
	04	Study of cloning vectors, Recombinant DNA technology.		04
	05	Application of genetic engineering in medicine.		01
	06	Application of r DNA technology and genetic engineering in the production of: i) Interferon ii) Vaccines- hepatitis- B iii) Hormones-Insulin.		04
	07	Brief introduction to PCR139		01
	08	Types of immunity- humoral immunity, cellular immunity Structure of Immunoglobulins		03
	09	Hypersensitivity reactions, General method of the preparation of bacterial vaccines, toxoids, viral vaccine, antitoxins,		04
	10	serum-immune blood derivatives and other products relative to immunity.		02
	11	Hybridoma technology		01
	12	Immuno blotting techniques		01
13	Microbial genetics including transformation, transduction, conjugation,		01	



**Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray College of Pharmacy**

To be a Premier Centre of Pharmacy Education,
Approved by A.I.C.T.E., P.C.I. (New Delhi), D.T.E. (Mumbai) &
State Govt. of Maharashtra, AISHE Code - C-41859

Tele Fax: (02554) 252563 Email: prin.sphpharmacycollege@ngvnsak.org Website: www.ngvmlgpharmacy.khbgroup.in



	14	plasmids and transposons.	01									
	15	Introduction to Microbial biotransformation and applications.	01									
	16	Mutation: Types of mutation/mutants.	01									
	17	Fermentation methods and general requirements,	02									
	18	Study of the production of - penicillin's, Vitamin B12, Glutamic acid,	02									
	19	Blood Products: Collection, Processing and Storage of whole human blood, dried human plasma, Plasma Substitutes .	03									
Course level	CO605: 02	Plant tissue culture, Gene synthesis & gene machine										
Assessment methodology	Summative and Formative Assessment (Direct Method)											
Course matrix	Course Outcome (CO's)	Program Outcomes (PO's)										
		POs										
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
	CO1	2	2	3	2	2	2	3	2	3	3	3
	CO2	2	3	2	2	2	3	3	2	3	3	3
	CO3	2	2	3	2	2	3	3	3	3	3	3
	CO4	2	3	2	3	3	3	3	3	3	3	3
	Average	08/12	10/12	10/12	9/12	9/12	11/12	12/12	10/12	12/12	12/12	12/12
	Percentage	66.66	83.33	83.33	75	75	91.66	100	83.33	100	100	100
	Average	2	2.5	2.5	2.25	2.25	2.75	3	2.5	3	3	3
1: Slight (Low) , 2: Moderate (Medium), 3: Substantial (High)												

Pos:

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





**Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray College of Pharmacy**

To be a Premier Centre of Pharmacy Education,
Approved by A.I.C.T.E., P.C.I. (New Delhi), D.T.E. (Mumbai) &
State Govt. of Maharashtra, AISHE Code - C-41859



Tele Fax: (02554) 252563 Email: prin_sphpharmacycollege@mgvnsaik.org Website: www.mgvmlgpharmacy.kbhgroup.in

Criteria for CO attainment:

1. If COPO mapping average is above 80%, it is considered as Attainment Level 3.
2. If COPO mapping average is above 50% and less than 80%, it is considered as Attainment Level 2.
3. If COPO mapping average is less than 50%, it is considered as Attainment Level 1.

T.Y. B. Pharm, Sem-VI, 2019 Pattern												Average
Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	
CO605 T	2	2.5	2.5	2.25	2.25	2.75	3	2.5	3	3	3	2.61 (87.12%)

Attainment Level 3- Substantial (High)





**Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray College of Pharmacy**

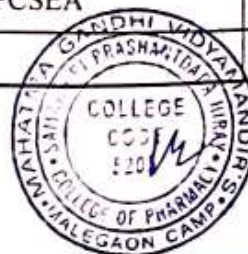
To be a Premier Centre of Pharmacy Education,
Approved by A.I.C.T.E., P.C.I. (New Delhi), D.T.E. (Mumbai) &
State Govt. of Maharashtra, AISHE Code - C-41859



Tele Fax: (02554) 252563 Email: prin.sphpharmacycollege@mgvnsaik.org Website: www.mgvmlgpharmacy.kbhgroup.m

Course Outcomes and Mapping with Program Outcomes

Name of Teaching Faculty		: Dr.Devidas Gulabrao Bachhav	
Name of College : MGV'S Samajshri Prashantdada Hiray College of Pharmacy, Malegaon, Dist: Nashik			
Course/Subject Name : B. Pharm/Third Year B. Pharm, Sem VII, Pattern: 2019			
Subject and Subject Code PHARMACEUTICAL QUALITY ASSURANCE (BP606T)			
L-T-P		Type	Theory
		Credit	4
Course overview	This subject is intended to impart the the various aspects of quality control and quality assurance aspects of pharmaceutical industries. It deals with the important aspects like cGMP, QC tests, documentation, quality certifications and regulatory affairs		
Course outcome	CO No.	Cognitive level	Upon completion of the course student shall be able to
	CO606: 01	Understand (L2) Apply (L3)	Understand and apply the cGMP aspects in a pharmaceutical industry
	CO606: 02	Knowledge (L1)	Describe the importance of documentation
	CO606: 03	Understand (L2)	Understand the scope of quality certifications applicable to pharmaceutical industries
	CO606: 04	Understand (L2) Apply (L3)	Illustrate the responsibilities of QA & QC departments
Course coverage [Module wise topic list]	Module No.	Module Name and Module Overview	
	01	Quality Assurance and Quality Management concepts	
	02	Introduction to Regulatory agencies like CDSCO, USFDA, WHO, PIC/S	
	03	Total Quality Management	
	04	ICH Guidelines	
	05	Quality by design	
	06	ISO 9000 & ISO14000	
	07	NABL accreditation	
	08	Organization and personnel	
	09	Premises	
	10	Equipments and raw materials	
	11	Quality Control of Packaging material	
	12	Good Laboratory Practices & Role of CPCSEA	
13	Complaints		
		Lecture Hours	





**Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray College of Pharmacy**

To be a Premier Centre of Pharmacy Education,
Approved by A.I.C.T.E., P.C.I. (New Delhi), D.T.E. (Mumbai) &
State Govt. of Maharashtra, AISHE Code - C-41859



Tele Fax: (02554) 252563 Email: prin sphpharmacycollege@mgvnsaik.org Website: www.mgvmipharmacy.kbhgroup.in

	14	Document maintenance in pharmaceutical industry in brief	05									
	15	Calibration and Validation	03									
	16	General principles of Analytical method Validation	02									
	17	Warehousing	02									
Course level	CO606T:	Sample Documents										
Problem	02											
Assessment methodology	Summative and Formative Assessment (Direct Method)											
Course matrix	Course Outcome (CO's)	Program Outcomes (PO's)										
		POs										
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
	CO1	3	3	3	3	3	3	3	3	3	3	3
	CO2	3	3	3	2	2	1	2	3	2	2	3
	CO3	3	3	1	1	3	3	2	3	3	3	3
	CO4	3	3	3	3	3	1	3	3	3	3	3
	Average	12/12	12/12	10/12	09/12	11/12	08/12	10/12	12/12	11/12	11/12	12/12
	Percentage	100	100	83.33	75	91.67	66.67	83.33	100	91.67	91.67	100
	Average	3	3	2.5	2.25	2.75	2	2.5	3	2.75	2.75	3
1: Slight (Low) , 2: Moderate (Medium), 3: Substantial (High)												

Pos:

- 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





Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray College of Pharmacy
To be a Premier Centre of Pharmacy Education,
Approved by A.I.C.T.E., P.C.I. (New Delhi), D.T.E. (Mumbai) &
State Govt. of Maharashtra, AISHE Code - C-41859



Tele Fax: (02554) 252563 Email: prin.spharmacycollege@mgvnsaik.org Website: www.mgvmlgpharmacy.kbhgroup.in

Criteria for CO attainment:

1. If COPO mapping average is above 80%, it is considered as Attainment Level 3.
2. If COPO mapping average is above 50% and less than 80%, it is considered as Attainment Level 2.
3. If COPO mapping average is less than 50%, it is considered as Attainment Level 1.

T.Y. B. Pharm, Sem-VII, 2019 Pattern												Average
Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	
CO606 T	3	3	2.5	2.25	2.75	2	2.5	3	2.75	2.75	3	2.68 (89.39 %)

Attainment Level 3- Substantial (High)





Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray College of Pharmacy
To be a Premier Centre of Pharmacy Education,
 Approved by A.I.C.T.E., P.C.I. (New Delhi), D.T.E. (Mumbai) &
 State Govt. of Maharashtra, AISHE Code - C-41859
 Tele Fax: (02554) 252563 Email: sphmgv@yahoo.co.in Website: www.mgv.org.in



Course Outcomes and Mapping with Program Outcomes

Name of Teaching Faculty		: Prof. Kiran Bhausahab Erande			
Name of College : MGVS Samajshri Prashantdada Hiray College of Pharmacy, Malegaon, Dist: Nashik					
Course/Subject Name : B. Pharm/Thrd Year B. Pharm, Sem VI, Pattern: 2019					
Subject and Subject Code: Biopharmaceutics and Pharmacokinetics, BP604T					
L-T-P		Type	Theory	Credit	4
Course overview	This Course is designed to impart knowledge and skills of Biopharmaceutics and Pharmacokinetics and their applications in pharmaceutical dosage form development				
Course outcome	CONo.	Cognitive level	Upon completion of the course student shall be able to		
	CO604: 01	Understand (L2)	Understand the basic concepts in Biopharmaceutics and Pharmacokinetics with their significance with special emphasis on ADME.		
	CO604: 02	Apply (L3)	Calculate the Pharmacokinetic parameters to describe the kinetics of drug absorption, distribution, metabolism, excretion, elimination using plasma drug concentration-time data.		
	CO604: 03	Understand (L2)	Understand the concepts of bioavailability and bioequivalence of drug products and their significance.		
	CO604: 04	Understand (L2) Apply (L3)	Understand the concept of dissolution and application of <i>in vitro in vivo</i> correlation in drug product development.		
Course coverage [Module wise topic list]	Module No.	Module Name and Module Overview			Lecture Hours
	01	Introduction to Biopharmaceutics			01
	02	Absorption: Mechanisms of drug absorption through GIT, factors influencing drug absorption through GIT, absorption of drug from Non per oral extra-vascular routes			04
	03	Distribution: Tissue permeability of drugs, binding of drugs, apparent volume of drug distribution, plasma and tissue			05





Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray College of Pharmacy

To be a Premier Centre of Pharmacy Education,
Approved by AICTE, P.C.T. (New Delhi), D.T.E. (Mumbai) &
State Govt. of Maharashtra, AISHH Code - T-41859

Tele Fax: (02554) 252563 E-mail: sp@mgv.ac.in Website: www.mgv.ac.in



	protein binding, factors affecting protein-drug binding. Kinetics of protein binding, Clinical significance of protein binding of drugs	
04	Drug metabolism and basic understanding, metabolic pathways, factors affecting drug metabolism	03
05	Renal excretion of drugs, factors affecting renal excretion of drugs, renal clearance, Non renal routes of drug excretion of drugs	03
06	Biopharmaceutical classification system	01
07	Theories of dissolution, dissolution test apparatus, dissolution models	02
08	<i>In-vitro-in-vivo</i> correlations	01
09	Bioavailability and Bioequivalence: Definition and Objectives of bioavailability, absolute and relative bioavailability.	01
10	Measurement of bioavailability	02
11	Bioequivalence studies and study designs	02
12	Review of regulatory requirements for conducting bioequivalence study	01
13	Bio-waivers	02
14	Methods to enhance the dissolution rates and bioavailability of poorly soluble drugs.	02
15	Pharmacokinetics: Definition and introduction to Pharmacokinetics	01
16	Compartment models, Non compartment models, physiological models, One compartment open model (a) Intravenous Injection (Bolus) (b) Intravenous infusion and (c) Extra vascular administrations.	04
17	Pharmacokinetics parameters - KE , $t_{1/2}$, V_d , AUC , K_a , CLT and CLR - definitions methods of eliminations, understanding	04





**Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray College of Pharmacy**

To be a Premier Centre of Pharmacy Education,
Approved by A.I.C.T.E., P.C.I. (New Delhi), D.T.E. (Mumbai) &
State Govt. of Maharashtra, AISHE Code - C-41859

Tele Fax: (02554) 252563 Email: sphmgv@yahoo.co.in Website: www.mgv.org.in



		of their significance and application.										
	18	Introduction to multicompartment model.	01									
	19	Nonlinear Pharmacokinetics: Introduction, Factors causing Non-linearity, Michaelis-menten equation	03									
	20	Determination of Vmax and Km. Significance of nonlinear pharmacokinetics, Explanation with example of drugs.	02									
Course level	CO604: 02	Case studies to be considered for calculations.										
Problem												
Assessment methodology	Summative and Formative Assessment (Direct Method)											
Course matrix	Course Outcome (CO's)	Program Outcomes (PO's)										
		POs										
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
	CO1	3	2	1	1	--	1	--	--	01	--	3
	CO2	3	1	3	3	--	1	1	--	--	--	3
	CO3	3	1	1	2	--	--	1	--	--	--	3
	CO4	3	1	1	3	--	--	1	1	--	01	3
Average	3	1.25	1.5	2.25	00	0.5	0.75	0.25	0.25	0.25	3	
	1: Slight (Low) , 2: Moderate (Medium), 3: Substantial (High)											

Pos:

- 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





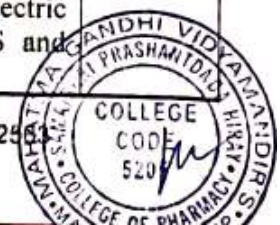
**MAHATMA GANDHI VIDYAMANDIR'S
SMAJSHRI PRASHANTDADA HIRAY
COLLEGE OF PHARMACY**

Approved by : Pharmacy Council of India, New Delhi, Recognized by : DTE, Mumbai
 Affiliated to : Savitribai Phule Pune University, Pune (CPIIN018220), MSBTE (2142) DTE Code : 5205 AISHE Code : C-41859 Exam Code : 1032

Name of Teaching Faculty		: Prof. Priti Tushar Newadkar	
Name of College : MGVS Samajshri Prashantdada Hiray College of Pharmacy, Malegaon, Dist: Nashik			
Course/Subject Name : B. Pharm/ Final Year B. Pharm, Sem VII, Instrumental Method of Analysis (2023-24)			
L-T-P		Type	Credit 4
Course overview	This subject deals with the application of instrumental methods in qualitative and quantitative analysis of drugs. This subject is designed to impart a fundamental knowledge on the principles and instrumentation of spectroscopic and chromatographic technique. This also emphasizes on theoretical and practical knowledge on modern analytical instruments that are used for drug testing.		
Course outcome	CO No.	Cognitive level	Student shall able to,
	CO701: 01	Understanding (2)	Illustrate the interaction of matter with electromagnetic radiations and justify its applications in drug analysis.
	CO701: 02	Comprehension (2)	Classify the chromatographic separation methods and choose appropriate technique for analysis of drugs.
	CO701: 03	Application (3)	Design methods for performing quantitative & qualitative analysis of drugs using various analytical instruments.
	CO701: 04	Knowledge (1)	Emphasizes on theoretical and practical knowledge on modern analytical instruments that are used for drug testing..
Course coverage [Module wise topic list]	Module No.	Module Name and Module Overview	Lecture Hours
	01	Introduction to spectroscopy, Electronic transitions, Chromophores, Auxochrome Beer and Lambert's law, Derivation and deviations. spectral shifts, solvent effect on absorption spectra Instrumentation - Sources of radiation, wavelength selectors Detectors- sample cells , Photo tube, Photomultiplier tube Photo voltaic cell, Silicon Photodiode Applications - Spectrophotometric titrations, Single component and multi component Analysis Fluorimetry Theory, Concepts of singlet, doublet and triplet electronic states, internal and external conversions, factors affecting fluorescence, quenching, instrumentation and applications	10
	02	FTIR spectroscopy Introduction, fundamental modes of vibrations in poly atomic molecules, sample handling, factors affecting vibrations Instrumentation - Sources of radiation, wavelength selectors, detectors - Golay cell, Bolometer, Thermocouple, Thermister, Pyroelectric detector, FTIR instrument, sample handling attachments -DRS and ATR and applications	05

Loknete Vyankatrao Hiray Marg, Malegaon camp, Nashik, Maharashtra - 423105, Tel: (02554) 252583
 email : prin.spharmacycollege@mgvnashik.org Website : www.mgvmlgpharmacy.kbhgroup.in

To be a Premier Centre of Pharmacy Education





**MAHATMA GANDHI VIDYAMANDIR'S
SAMAJSHRI PRASHANTDADA HIRAY
COLLEGE OF PHARMACY**

Approved by : Pharmacy Council of India, New Delhi, Recognized by : DTE, Mumbai

Affiliated to : Savitribai Phule Pune University Pune (CPHN018220) MSBTE (2142) DTE Code : 5205 AISHE Code : C-418/3 Exam Code : 1032

03	Flame Photometry Principle, interferences, instrumentation and applications Atomic absorption spectroscopy Principle, interferences, instrumentation and Applications Nepheloturbidimetry Introduction	05
04	1. Introduction to chromatography - Adsorption and partition column chromatography: Methodology, advantages, disadvantages and applications. 2. Paper chromatography: Introduction, methodology, development techniques, advantages, disadvantages and applications 3. Thin layer chromatography: Introduction, Principle, Methodology, Rf values, advantages, disadvantages and applications. 4. HPTLC: Introduction, Instrumentation and applications	10
05	Theory of Chromatography Plate theory, Rate theory, System suitability parameters Gas chromatography Introduction, theory, instrumentation, temperature programming, advantages, disadvantages and applications High performance liquid chromatography (HPLC) Introduction, theory, instrumentation, advantages and applications.	08
06	Ion exchange chromatography Introduction, classification, ion exchange resins, properties, mechanism of ion exchange process, factors affecting ion exchange, methodology and applications Gel chromatography Introduction, theory, instrumentation and applications Affinity chromatography- Introduction	07

Course level Problem	CO No. 03	Nuclear Magnetic Resonance Introduction of NMR, Instrumentation, applications
-----------------------------	-----------	--

Assessment methodology	Summative and Formative Assessment (Direct Method)
-------------------------------	--

Course matrix	Course Outcome (CO's)	Program Outcomes (PO's)										
		POs										
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
	CO1	3	3	2	3	3	3	3	3	3	3	3
	CO2	3	3	2	3	3	2	2	3	3	3	3
	CO3	3	3	2	3	3	3	3	3	3	3	3
	CO4	3	3	2	3	3	3	3	3	3	3	3
	Average	3	3	2	3	3	2.5	2.5	3	3	3	3

Loknete Vyankatrao Hiray Marg, Malegaon camp, Nashik, Maharashtra - 423105, Tel: (02554) 257583
email : prin.sphpharmacycollege@mgvnasik.org Website : www.mgvmlgpharmacy.kbhgroup.in

To be a Premier Centre of Pharmacy Education





**MAHATMA GANDHI VIDYAMANDIR'S
SAMAJSHRI PRASHANTDADA HIRAY
COLLEGE OF PHARMACY**

Approved by : Pharmacy Council of India, New Delhi. Recognized by : DTE, Mumbai
Affiliated to : Savitribai Phule Pune University, Pune (CPHN018220) MSBTE (2142) DTE Code : 5205 AISHE Code : C-41859 Exam Code : 1032

	12/12	12/12	10/12	11/12	12/12	10/12	10/12	12/12	12/12	12/12	12/12
	100	100	83	91	100	83	83	100	100	100	100
1: Slight (Low) , 2: Moderate (Medium), 3: Substantial (High)											

Pos:

- PO1: Pharmacy Knowledge.
- PO2: Planning Abilities.
- PO3: Problem Analysis.
- PO4: Modern tool usage.
- PO5: Leadership skills.
- PO11: Life-long learning

- PO6: Professional Identity.
- PO7: Pharmaceutical Ethics.
- PO8: Communication.
- PO9: The Pharmacist and society.
- PO10: Environment and sustainability.

Criteria for CO attainment:

1. If COPO mapping average is above 80%, it is considered as Attainment Level 3.
2. If COPO mapping average is above 50% and less than 80%, it is considered as Attainment Level 2.
3. If COPO mapping average is less than 50%, it is considered as Attainment Level 1.

T.Y. B. Pharm, Sem-VI, 2019 Pattern

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO601T	3	3	3	3	3	3	3	3	2	3	3



Loknete Vyankatrao Hiray Marg, Malegaon camp, Nashik, Maharashtra - 423105, Tel: (02554) 252563
email : prin.sphpharmacycollege@mgvnsaik.org Website : www.mgvmlgpharmacy.kbhgroup.in

To be a Premier Centre of Pharmacy Education



**MAHATMA GANDHI VIDYAMANDIR'S
SMAJSHRI PRASHANTDADA HIRAY
COLLEGE OF PHARMACY**

Approved by : Pharmacy Council of India, New Delhi. Recognized by : DTE, Mumbai.
 Affiliated to : Savitribai Phule Pune University, Pune (CPHN018220). MSBTE (2142) DTE Code : 5205 AISHE Code : C-41859 Exam Code : 1032

Name of Teaching Faculty		: Prof. Priti Tushar Newadkar	
Name of College : MGV'S Samajshri Prashantdada Hiralay College of Pharmacy, Malegaon, Dist: Nashik			
Course/Subject Name : B.Pharm/Final Year B.Pharm, Sem-VII, Instrumental Method of Analysis (2023-24)			
L-T-P		Type	Practical
			Credit 2
Course overview	This subject deals with the application of instrumental methods in qualitative and quantitative analysis of drugs. This subject is designed to impart a fundamental knowledge on the principles and instrumentation of spectroscopic and chromatographic technique. This also emphasizes on theoretical and practical knowledge on modern analytical instruments that are used for drug testing.		
Course outcome	CO No.	Cognitive level	
	CO705: 01	Apply	Explain the different types of instrumental analytical techniques
	CO705: 02	Analysis	Understand the principles and instrumentation of UV-VIS, Flourimetry, Atomic absorption, Flame photometry and Nepheloturbidimetry
	CO705: 03	Understand	Utilize the of UV-VIS, Flourimetry, Atomic absorption, Flame photometry and Nepheloturbidimetry
	CO705: 04	Knowledge	Apply appropriate safety measures while handling chemicals, apparatus and different analytical instruments
Course coverage [Module topic list]	Module No.	Module Name and Module Overview	
	01	Weights and measures and pharmacopoeia in analysis.	
	02	Determination of absorption maxima and effect of solvent on absorption maxima of organic compounds	
	03	Assay of Drug product as per IP (Assay of Paracetamol tablet by UV Spectrophotometry)	
	04	Assay of Drug product by Calibration curve method	
	05	Assay of any drug/drug product by colorimetry	
	06	Simultaneous estimation of multi-component formulation by UV spectroscopy(SE/Q analysis)	
	07	Estimation of drug by fluorimetry	
	08	Study of quenching of fluorescence 9, 10, 11, 12 13, 14, 15.	
	09	Determination of sodium and potassium by flame photometry	
	10	Separation of amino acids by paper chromatography	
	11	Separation of sugars by thin layer chromatography	
	12	Separation of plant pigments by column chromatography	
	13	Demonstration of HPLC instrument	
	14	Demonstration of FTIR instrument	
15	Interpretation of spectra of organic compounds by IR spectroscopy as per pharmacopoeia		
			Practical Hours

Loknete Vyankatrao Hiralay Marg, Malegaon camp, Nashik, Maharashtra - 423105, Tel: (02554) 242803
 email : pnh.sphpharmacycollege@mgvnashik.org Website : www.mgvmlgpharmacy.kbhgroup.in

To be a Premier Centre of Pharmacy Education





MAHATMA GANDHI VIDYAMANDIR'S
**SAMAJSHRI PRASHANTDADA HIRAY
 COLLEGE OF PHARMACY**

Approved by : Pharmacy Council of India, New Delhi. Recognized by : DTE, Mumbai
 Affiliated to : Savitribai Phule Pune University, Pune (CPHND18220). MSBTE (2142) DTE Code : 5205 AISHE Code : C-41859 Exam Code : 1032

Course level Problem	CO No. 03	Interpretation of spectra of organic compounds by NMR spectroscopy as per pharmacopoeia										
Assessment methodology	Summative and Formative Assessment (Direct Method)											
Course matrix	Course Outcome (CO's)	Program Outcomes (PO's)										
		POs										
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
	CO1	3	3	3	3	3	3	3	3	3	3	3
	CO2	3	3	3	3	3	2	2	3	3	3	3
	CO3	3	2	3	3	3	2	2	3	3	3	3
	CO4	3	3	3	3	3	3	3	3	3	3	3
Average	3	2.75	3	3	3	2.5	2.5	3	3	3	3	
	12/12	11/12	12/12	12/12	12/12	10/12	10/12	12/12	12/12	12/12	12/12	
	100	91	100	100	100	83	83	100	100	100	100	
1: Slight (Low), 2: Moderate (Medium), 3: Substantial (High)												

Pos:
 PO1: Pharmacy Knowledge.
 PO2: Planning Abilities.
 PO3: Problem Analysis.
 PO4: Modern tool usage.
 PO5: Leadership skills.
 PO11: Life-long learning

PO6: Professional Identity.
 PO7: Pharmaceutical Ethics.
 PO8: Communication.
 PO9: The Pharmacist and society.
 PO10: Environment and sustainability.

Criteria for CO attainment:

1. If COPO mapping average is above 80%, it is considered as Attainment Level 3.
2. If COPO mapping average is above 50% and less than 80%, it is considered as Attainment Level 2.
3. If COPO mapping average is less than 50%, it is considered as Attainment Level 1.

T.Y. B. Pharm, Sem-VI, 2019 Pattern												
Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	Average
CO607P	3	3	3	3	3	3	3	3	2	3	3	2.90 (96.66P)

Attainment Level 3: Substantial (High)



Loknete Vyankatrao Hiray Marg, Malegaon camp, Nashik, Maharashtra - 423105, Tel: (02554) 252583
 email : prin.sphpharmacycollege@mgvnsaik.org Website : www.mgvmlgpharmacy.kbhgroup.in

To be a Premier Centre of Pharmacy Education



**Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray College of Pharmacy,**

To be a premier center of Pharmacy Education

Loknete Vyankatrao Hiray Marg, Malegaon camp, (Nashik)

Affiliated to Savitribai Phule Pune University (CPHN018220)

Approved by A.I.C.T.E., P.C.I. (New Delhi), D.T.E. (Mumbai) &
State Govt. of Maharashtra

Tele Fax: (02554) 252563 Email: spungv@yahoo.co.in Website: www.mgv.edu.in



Subject:- Pharmacy Practice (Theory)

Year :- Final Y. B. Pharm (2019 Pattern)

COPO Correlation: Theory: Pharmacy practice

Name of Staff: - Mr. P.R. Shirde

CO	Students shall be able to
CO- BP703T. 1	know various drug distribution methods in a hospital
CO- BP703T. 2	monitor drug therapy of patient through medication chart review and clinical review
CO- BP703T. 3	identify drug related problems
CO- BP703T. 4	know pharmaceutical care services

Course Code/ Course title	Course Outcomes	PO											
		1	2	3	4	5	6	7	8	9	10	11	
BP 703 T	Student Will be Able to												
	CO.1 know various drug distribution methods in a hospital	3	2	3	2	3	3	2	1	3	2	2	
	CO.2 monitor drug therapy of patient through medication chart review and clinical review	2	3	2	3	2	3	3	2	2	3	2	
	CO.3. identify drug related problems	3	3	3	2	2	2	3	2	3	2	1	
	CO.4 know pharmaceutical care services	3	2	1	3	2	3	2	3	1	2	3	
	Average	2.75	2.5	2.25	2.5	2.25	2.75	2.5	2	2.25	2.25	2	

Each PO was assessed as high (3), moderate (2) and low (1) attainment levels and (-) indicates no. mapping with respective PO. The average of each PO was made and further averaged for each course outcomes as given in table





**Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray College of Pharmacy**

To be a Premier Centre of Pharmacy Education,
Approved by A.I.C.T.E., P.C.I. (New Delhi), D.T.E. (Mumbai) &
State Govt. of Maharashtra, AISHE Code - C-41859

Tele Fax: (02554) 252563 Email: prin_sphpharmacycollege@mgvnsaik.org Website: www.mgvmlgpharmacy.kbhgroup.in



Course Outcomes and Mapping with Program Outcomes

Name of Teaching Faculty		: Dr. Devidas Gulabrao Bachhav			
Name of College : MGV'S Samajshri Prashantdada Hiray College of Pharmacy, Malegaon, Dist: Nashik					
Course/Subject Name : B. Pharm/Final Year B. Pharm, Sem VII, Pattern: 2019					
Subject and Subject Code: Industrial Pharmacy-II (BP702T)					
L-T-P		Type	Theory	Credit	4
Course overview	This subject is intended to impart fundamental knowledge on pharmaceutical product development and translation from laboratory to market.				
Course outcome	CO No.	Cognitive level	Upon completion of the course student shall be able to		
	CO702: 01	Understand (L2) Apply (L3)	Elaborate the process of pilot plant and scale up of pharmaceutical dosage forms.		
	CO702: 02	Understand (L2) Analyze(L4)	Understand the process of technology transfer from lab scale to commercial batch.		
	CO702: 03	Remember(L1)	Know and relate different Laws and Acts that regulate pharmaceutical industry.		
	CO702: 04	Understand (L2) Apply (L3)	Discuss the approval process and regulatory requirements for drug products.		
Course coverage [Module wise topic list]	Module No.	Module Name and Module Overview			Lecture Hours
	01	Pilot plant scale up techniques: significance of personnel requirements, space requirements, raw materials.			04
	02	Pilot plant scale up considerations for solids, liquid orals, semi solids and relevant documentation.			04
	03	SUPAC guidelines, Introduction to platform technology.			02
	04	WHO guidelines for Technology Transfer (TT): Terminology, protocol, Quality risk management, Transfer from R & D to production (Process, packaging and cleaning)			04
	05	Granularity of TT Process ,Documentation, Premises and equipment, qualification and validation, quality control, analytical method transfer, Approved regulatory bodies and agencies			04
	06	TT agencies in India - APCTD, NRDC, TIFAC, BCIL, TBSE / SIDBI; TT related documentation - confidentiality agreement, licensing, MoU's, legal issues			02
	07	Regulatory affairs: Historical overview of Regulatory Affairs, Regulatory authorities, Role of Regulatory affairs			04





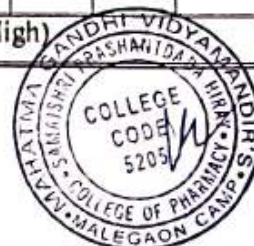
**Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray College of Pharmacy**

To be a Premier Centre of Pharmacy Education,
Approved by A.I.C.T.E., P.C.I. (New Delhi), D.T.E. (Mumbai) &
State Govt. of Maharashtra, AISHE Code - C-41859



Tele Fax: (02554) 252563 Email: prn.sphpharmacycollege@mgvnsaik.org Website: www.mgvmlgpharmacy.kbhgroup.in

		department, Responsibility of Regulatory Affairs Professionals										
08		Application, Investigator's Brochure (IB) and New Drug Application (NDA), Clinical research / BE studies, Clinical Research Protocols, Biostatistics in Pharmaceutical	04									
09		Product Development, Data Presentation for FDA Submissions, Management of Clinical Studies.	02									
10		Indian Regulatory Requirements: CDSCO	02									
11		State Licensing Authority	02									
12		Certificate of Pharmaceutical Product (COPP), Regulatory requirements and approval procedures for New Drugs.	03									
13		Quality management systems	01									
14		Total Quality Management, Quality by Design (QbD), Six Sigma concept	03									
15		Out of Specifications (OOS), Change control,	01									
16		Introduction to ISO 9000 series of quality systems standards, ISO 14000	01									
17		NABL, GLP	02									
Course level	CO702: 02	Sample documents										
Problem												
Assessment methodology	Summative and Formative Assessment (Direct Method)											
Course matrix	Course Outcome (CO's)	Program Outcomes (PO's)										
		POs										
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
	CO1	3	3	3	3	3	3	3	3	3	3	3
	CO2	3	3	3	3	3	3	3	3	3	3	3
	CO3	3	3	1	1	1	2	2	3	3	3	3
	CO4	3	3	1	1	1	1	2	1	2	1	3
	Average	12/12	12/12	8/12	8/12	8/12	9/12	10/12	10/12	11/12	10/12	12/12
	Percentage	100	100	66.67	66.67	66.67	75	83.33	83.33	91.66	83.33	100
	Average	3	3	2	2	2	2.25	2.5	2.5	2.75	2.5	3
1: Slight (Low), 2: Moderate (Medium), 3: Substantial (High)												





**Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray College of Pharmacy**

To be a Premier Centre of Pharmacy Education,
Approved by A.I.C.T.E., P.C.I. (New Delhi), D.T.E. (Mumbai) &
State Govt. of Maharashtra, AISHE Code - C-41859



Tele Fax: (02554) 252563 Email: prin@pharmacycollege@mgsvnmk.org Website: www.mgsvnlpharmacy.khgroup.in

Pos:

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

Criteria for CO attainment:

1. If COPO mapping average is above 80%, it is considered as Attainment Level 3.
2. If COPO mapping average is above 50% and less than 80%, it is considered as Attainment Level 2.
3. If COPO mapping average is less than 50%, it is considered as Attainment Level 1.

Final Y. B. Pharm, Sem-VII, 2019 Pattern

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	Average
CO702 T	3	3	2	2	2	2.25	2.5	2.5	2.75	2.5	3	2.5 (83.33 %)

Attainment Level 3- Substantial (High)





Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray College of Pharmacy

To be a Premier Centre of Pharmacy Education,
Approved by A.L.C.T.E., P.C.T. (New Delhi), D.T.E. (Mumbai) &
State Govt. of Maharashtra, AISHE Code - C-41859



Tele Fax: (02554) 252563 Email: prin@pharmacycollege.mgvs-nashik.org Website: www.mgvspharmacy.mgvsnp.edu

Course Outcomes and Mapping with Program Outcomes

Name of Teaching Faculty		: Prof. Vinod Rajaram Patil			
Name of College : MGVS Samajshri Prashantdada Hiray College of Pharmacy, Malegaon, Dist: Nashik					
Course/Subject Name : B. Pharm/Third Year B. Pharm, Sem VI, Pattern: 2019					
Subject and Subject Code: PharmacologyIII, BP602T					
L-T-P		Type	Theory	Credit	4
Course overview	This subject is intended to impart the fundamental knowledge on various aspects (classification, mechanism of action, therapeutic effects, clinical uses, side effects and contraindications) of drugs acting on respiratory and gastrointestinal system, infectious diseases, immuno-pharmacology and in addition, emphasis on the principles of toxicology and Chronopharmacology.				
Course outcome	CO No.	Cognitive level	Upon completion of the course student shall be able to		
	CO602: 01	Understand (L2)	Classify drugs based on their therapeutic utility		
	CO602: 02	Understand (L2) Apply (L3)	Explain the principles of toxicology and treatment of poisoning		
	CO602: 03	Understand (L2)	Discuss the significance of biological clock in diseases and chronotherapy		
	CO602: 04	Understand (L2) Apply (L3)	Explain the pharmacology of drugs		
Course coverage [Module wise topic list]	Module No.	Module Name and Module Overview			Lecture Hours
	01	Anti -asthmatic drugs			02
	02	Drugs used in the management of COPD			02
	03	Expectorants and antitussives			02
	04	Nasal decongestants , Respiratory stimulants			03
	05	Antiulcer agents			02
	06	Drugs for constipation and diarrhoea.			01
	07	Appetite stimulants and suppressants. Digestants and carminatives.			02





**Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray College of Pharmacy**



To be a Premier Centre of Pharmacy Education,
Approved by A.I.C.T.E., P.C.I. (New Delhi), D.T.E. (Mumbai) &
State Govt. of Maharashtra, AISHE Code - C-41859

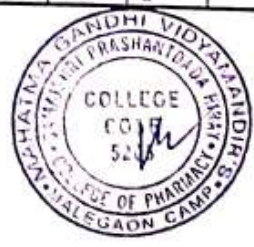
Tele Fax: (02554) 252563 Email: prin.sp@pharmacycollege.comgnasik.org Website: www.mgvmlgpharmacy.kbhgroup.in

08	<i>Emetics and anti-emetics</i>	02
09	General principles of chemotherapy.	01
10	Sulfonamides and cotrimoxazole.	02
11	Antibiotics- Penicillins, cephalosporins, chloramphenicol, macrolides, quinolones and fluoroquinolins, tetracycline and aminoglycosides	03
12	chemotherapy of Antitubercular agents and Antileprotic agents	02
13	chemotherapy of Antifungal agents, Anthelmintics, Antimalarial drugs, Antiamoebic agents and Antiviral drugs	01
14	Chemotherapy of Urinary tract infections and sexually transmitted diseases	07
15	Chemotherapy of malignancy.	02
16	Immunostimulants and Immunosuppressant	04
17	Principles of toxicology	05
18	Chronopharmacology	02

Course level	CO602: 04	To know pathophysiology of disease and disorders
Problem		

Assessment methodology	Summative and Formative Assessment (Direct Method)
-------------------------------	--

Course matrix	Course Outcome (CO's)	Program Outcomes (PO's)										
		POs										
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
	CO1	3	2	3	2	2	2	3	2	3	2	3
	CO2	3	2	3	3	2	3	2	2	2	2	3
	CO3	3	3	2	3	2	2	2	2	2	2	3
	CO4	3	2	2	3	2	3	3	2	3	2	3
Average	12	11/12	10/12	11/12	8/12	10/12	10/12	8/12	10/12	8/12	12/12	





**Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray College of Pharmacy**



To be a Premier Centre of Pharmacy Education,
Approved by A.I.C.T.E., P.C.I. (New Delhi), D.T.E. (Mumbai) &
State Govt. of Maharashtra, AISHE Code - C-41859

Tele Fax: (02554) 252563 Email: pnn.spharmacycollege@mgvnsk.org Website: www.mgvnlpharmacy.khgroup.in

	/12											
Percentage	100	91.66	83.33	91.66	66.66	83.33	83.33	66.66	83.33	66.66	100	
Average	3	2.75	2.50	2.75	2.0	2.5	2.50	2.00	2.50	2.0	3	

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

Pos:

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

Criteria for CO attainment:

1. If COPO mapping average is above 80%, it is considered as Attainment Level 3.
2. If COPO mapping average is above 50% and less than 80%, it is considered as Attainment Level 2.
3. If COPO mapping average is less than 50%, it is considered as Attainment Level 1.

T.Y. B. Pharm, Sem-VI, 2019 Pattern

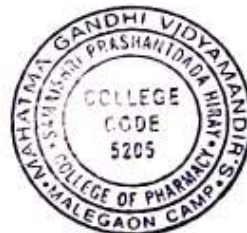
Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	Average
CO602T	3	2.75	2.50	2.75	2.0	2.50	2.50	2.00	2.50	2.0	3	2.50 (83.33)

Attainment Level 3- Substantial (High)


Prof. V. R. Patil
(Subject Incharge)


Dr. S. K. Mahajan
(Vice Principal)


Dr. S. R. Tambe
(Principal)
PRINCIPAL
Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray
College of Pharmacy
LVH Marg, Malegaon Camp
Dist. Nashik 423105





**Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray College of Pharmacy**

To be a Premier Centre of Pharmacy Education,
Approved by A.C.T.E., P.C.T. (New Delhi), D.T.E. (Mumbai) &
State Govt. of Maharashtra, AICTE Code: 14195

Tele Fax: (02554) 252563 Email: mgvsc@pharmcollege.org Website: www.mgvscpharmcollege.org



Course Outcomes and Mapping with Program Outcomes

Name of Teaching Faculty		: Prof. Vinod Rajaram Patil		
Name of College : MGVS Samajshri Prashantdada Hiray College of Pharmacy, Malegaon, Dist. Nashik				
Course/Subject Name : B. Pharm/Third Year B. Pharm, Sem V, Pattern: 2019				
Subject and Subject Code: PharmacologyII, BP503T				
L-T-P	Type	Theory	Credit	
			4	
Course overview	This subject is intended to impart the fundamental knowledge on various aspects (classification, mechanism of action, therapeutic effects, clinical uses, side effects and contraindications) of drugs acting on different systems of body and in addition, emphasis on the basic concepts of bioassay.			
Course outcome	CO No.	Cognitive level	Upon completion of the course student shall be able to	
	CO503: 01	Understand (L2)	Describe the principles, applications and types of bioassay	
	CO503: 02	Understand (L2) Apply (L3)	Explain the pharmacokinetics and mechanism of drug action at organ system/ sub cellular/macromolecular levels	
	CO503: 03	Understand (L2) Apply (L3)	Explain the pharmacology of drugs acting on systems	
	CO503: 04	Understand (L2) Apply (L3)	Discuss drug mechanisms and their relevance in the treatment of diseases	
Course coverage [Module wise topic list]	Module No.	Module Name and Module Overview		Lecture Hours
	01	Introduction to hemodynamic and electrophysiology of heart.		01
	02	Drugs used in congestive heart failure		02
	03	Anti-hypertensive drugs.		02
	04	Anti-anginal drugs.		01
	05	Anti-arrhythmic drugs.		02
	06	Anti-hyperlipidemic drugs.		02
	07	Drug used in the therapy of shock		02
	08	Hematincs, coagulants and anticoagulants		01





**Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray College of Pharmacy**

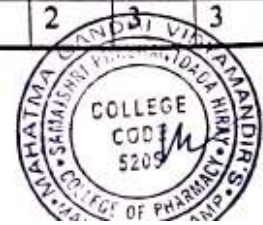
To be a Premier Centre of Pharmacy Education,
Approved by A.I.C.T.E., P.C.I. (New Delhi), D.T.E. (Mumbai) &
State Govt. of Maharashtra, AISHE Code - C-41859



Tele Fax: (02554) 252563 Email: prin_sphpharmacycollege@mgvnsaik.org Website: www.mgvnlpharmacy.khggroup.in

09	Fibrinolytics and anti-platelet drugs	01
10	Plasma volume expanders	01
11	Pharmacology of drugs acting on urinary system (Diuretics and anti-diuretics)	03
12	Autocoids and related drugs Histamine, 5-HT and their antagonists, Prostaglandins, Thromboxanes and Leucotrienes	02
13	Non-steroidal anti-inflammatory agents	02
14	Anti-gout drugs, Antirheumatic drugs	02
15	Pharmacology of drugs acting on endocrine system Insulin, Oral Hypoglycemic agents and glucagon. Thyroid hormones- analogues and their inhibitors, Hormones regulating plasma calcium level- Parathormone, Calcitonin and Vitamin-D.	06
16	Immunostimulants and Immunosuppressant	04
17	Pharmacology of drugs acting on endocrine system Drugs acting on the uterus. Androgens and Anabolic steroids. Estrogens, progesterone and oral contraceptives.	07
18	Bioassay Principles, applications and types of bioassay. Bioassay of insulin, oxytocin, vasopressin, ACTH, d-tubocurarine, digitalis, histamine and 5-HT	05

Course level	CO503: 02	To know pathophysiology of disease and disorders										
Problem												
Assessment methodology	Summative and Formative Assessment (Direct Method)											
Course matrix	Course Outcome (CO's)	Program Outcomes (PO's)										
		POs										
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
	CO1	3	2	2	3	2	3	3	2	3	3	3





**Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray College of Pharmacy**



To be a Premier Centre of Pharmacy Education,
Approved by A.I.C.T.E., P.C.I. (New Delhi), D.T.E. (Mumbai) &
State Govt. of Maharashtra, AISHE Code - C-41859

Tele Fax: (02554) 252563 Email: prin.sphpharmacycollege@mgvnsik.org Website: www.mgvmlgpharmacy.kbhgroup.in

CO2	3	3	2	3	2	2	2	2	2	2	3
CO3	3	2	3	2	2	2	2	3	2	3	3
CO4	3	2	2	2	1	2	3	3	2	2	3
Average	12 /12	9/1 2	9/12	10/ 12	7/12	9/1 2	10/1 2	10/1 2	9/12	10/1 2	12/12
Percentage	100	75	75	83. 33	58.3 3	75	83.3 3	83.3 3	75	83.3 3	100
Average	3	2.2 5	2.25	2.5 0	1.75	2.2 5	2.50	2..50	2.25	2.50	3
1: Slight (Low) , 2: Moderate (Medium), 3: Substantial (High)											

Pos:

- 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

Criteria for CO attainment:

- If COPO mapping average is above 80%, it is considered as **Attainment Level 3**.
- If COPO mapping average is above 50% and less than 80%, it is considered as **Attainment Level 2**.
- If COPO mapping average is less than 50%, it is considered as **Attainment Level 1**.

T.Y. B. Pharm, Sem-VI, 2019 Pattern												Average
Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	
CO503T	3	2.25	2.25	2.50	1.75	2.25	2.50	2..50	2.25	2.50	3	2.43 (81.06 %)

Attainment Level 3- Substantial (High)

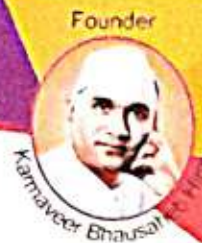
Prof. V. R. Patil
(Subject Incharge)

Dr. S. K. Mahajan
(Vice Principal)

Dr. S. R. Tambe
(Principal)

PRINCIPAL
Mahatma Gandhi Vidyamandir's
Samajshri Prashantdada Hiray
College of Pharmacy
H. Marg. Malegaon Camp
Dist. Nashik 423105





MAHATMA GANDHI VIDYAMANDIR'S
**SAMAJSHRI PRASHANTDADA HIRAY
COLLEGE OF PHARMACY**

Approved by Pharmacy Council of India, New Delhi. Recognized by : DTE, Mumbai
Affiliated to Savitribai Phule Pune University, Pune (CPHN018220), MSBTE (2142) DTE Code : 5205 AISHE Code : C-41859 Exam Code : 1032
Accredited by NAAC "B ++" Grade with = CGPA -2.88 in First Cycle, NSS CODE-D-SF-091

2.6.2

3. Practical Record of COPO



सविता ढोड १३



SAMAJSHRI PRASHANTDADA HIRAY COLLEGE OF PHARMACY

Approved by: Pharmacy Council of India, New Delhi
 Affiliated to: Savitribai Phule Pune University, Pune (CPHNI18220), MSBTE (2142)

Recognized by: Directorate of Technical Education, Mumbai
 DTE Code: 5205 AISHE Code: C-41859 Exam Code: 1032

Name: Pranjal D. Mistari Subject: P1 Analysis Academic Year: 2023-24 (2019 pattern) Class: E.Y B. Pharmacy

Sr. No.	Name of Experiment	Unit Outcomes												Avg	
		Students will able to	1	2	3	4	5	6	7	8	9	10	11		12
1.	To prepare & standardize NaOH soln by acid-base titration.	Prepare & standardize NaOH soln.	3	3	2	3	3	2	3	3	3	3	3	3	2.6
2.	To prepare & standardize M. H ₂ SO ₄ .	Prep. & stand. 0.5 M H ₂ SO ₄	3	2	3	3	2	2	3	3	2	3	3	3	2.5
3.	To perform the assay of NH ₄ Cl.	Perform the assay of NH ₄ Cl	3	3	2	3	2	3	3	3	3	3	2	3	2.6
4.	To prepare & stand. 0.1N KMnO ₄ soln.	Prep. & stand. 0.1N KMnO ₄ s	3	2	3	2	3	2	3	3	3	3	3	3	2.5
5.	To prepare & stand. 0.1M Na ₂ S ₂ O ₃	Prep. & stand. 0.1M Na ₂ S ₂ O ₃	3	3	2	3	2	2	3	3	2	3	3	3	2.6
6.	To perform the assay of CuSO ₄ .	Perform the assay of CuSO ₄	3	2	3	3	2	2	3	3	3	3	2	3	
7.	To perform the assay Ferrous sulph	Perform the assay of Ferrous sulph	3	2	3	3	2	2	3	3	3	2	3	3	

0 = No Relevance, Poor 1 = Low (33%), Average 2 = Medium (55%), Good 3 = High (100%), Excellent



VPV
13.1.24



Samajshri Prashantdada Hiray College of Pharmacy

Loknole Vyankatrao Hiray Marg, Malegaon Camp (Nashik)
 Affiliated to Savitribai Phule Pune University (CPHN018220)
 Approved by AICTE, PCL (New Delhi), DTE (Mumbai) & State Govt. of Maharashtra
 Tele Fax : (02554) 252563 Email : spmngv@vsnl.co.in Website : www.kbhgroup.in



Name: **Urvoshi Sanjoy Bhire** Subject: **Inorganic Chemistry** Programme Outcome
 2023 Academic Year 24 (2019 pattern) Class: **F.Y B.Pharm**

Sr. No.	Name of Experiment	Unit outcomes	1	2	3	4	5	6	7	8	9	10	11	Avg
1	To perform limit test for chloride	Students will able to determine the level of specific impurities in given compound	3	3	2	2	3	3	2	3	3	3	2	2.6
2	To perform limit test for sulphate in given sample	Determine the level of specific impurities. Compound specific impurities, +ve level of specific impurities in given compound	3	2	3	3	2	2	3	3	3	3	2	2.6
3	To perform limit test for iron of given sample	Determine the level of specific impurities, +ve level of specific impurities in given compound	3	3	2	3	3	2	2	3	3	3	3	2.5
4	To prepare and submit ferric chloride	Inorganic pharmaceutical use of chemical method preparation of inorganic-Pharmaceutical	3	2	3	2	3	2	3	3	3	2	3	2.6
5	To prepare and submit ferrous sulphate	Inorganic pharmaceutical use of chemical method preparation of inorganic-Pharmaceutical	3	3	2	3	2	2	3	3	2	3	3	2.5
6	To perform identification test for ferrous sulphate	Perform identification test for ferrous sulphate	3	2	3	3	2	2	3	2	3	3	3	2.6
7	To perform identification test for ferrous sulphate	Perform identification test for ferrous sulphate	3	2	3	3	2	2	3	2	3	3	3	2.7
8	Cation test NaHCO ₃ IP	Perform identification test for NaHCO ₃ IP	3	2	3	2	3	2	3	2	3	3	2	2.5
9	To perform identification test for NaHCO ₃ IP	Perform identification test for NaHCO ₃ IP	3	3	2	2	3	3	2	3	3	3	2	2.5
10	To perform identification test for calcium gluconate IP	Perform identification test for calcium gluconate IP	3	2	3	3	2	2	3	2	2	2	3	2.6
11	To determine the quantity of Benzoic acid in powder of Benzoic acid	Determine impurities quantity relatively by test for purity	3	3	3	2	3	3	3	2	3	3	3	2.6
12	To determine the quantity of AlCl ₃ (H ₂ O) ₆ in powder of AlCl ₃ (H ₂ O) ₆	Determine impurities qualitatively by test for purity	3	3	3	3	2	2	3	3	3	3	2	2.4
13	To determine the quantity of powder of iodine in iodized salt	Determine impurities qualitatively by test for purity.	3	3	2	3	2	2	3	3	3	3	3	2.7
14														
15														
16														
17														
18														
19														
20														
21														
Average														



Urvoshi Sanjoy Bhire
 15.11.24
 = 2.69

0=no relevance, poor 1=low (33%), Avg 2=Medium (55%), good 3=High (100%), excellent



Approved by: Pharmacy Council of India, New Delhi
 Affiliated to: Savitribai Phule Pune University, Pune (CPHN18220), MSBTE (2142)

MAHATMA GANDHI VIDYANANDIR'S
SAMAJSHRI PRASHANTPADA HIRAY
COLLEGE OF PHARMACY
 Recognized by: Directorate of Technical Education, Mumbai
 DTE Code: 5205 AISHE Code: C-41859 Exam Code: 1032

Name: Rashmesh Appasabhai Dhadke Subject: Pharmacokinetics Academic Year: 2023 (2nd Pattern) Class: E1 B. Pharmacy

Sr. No.	Name of Experiment	Programme Outcomes												Avg	
		Students will able to	1	2	3	4	5	6	7	8	9	10	11		12
1]	To perform time test by using the method of sample	Describe the level of drug in the body	3	3	2	2	3	3	2	3	3	3	3	3	2.6
2]	To perform time test by using the method of sample	Describe the level of drug in the body	3	2	3	3	2	2	3	3	3	3	3	3	2.5
3]	To perform time test by using the method of sample	Describe the level of drug in the body	3	3	2	3	3	2	3	3	3	3	3	3	2.6
4]	To perform time test by using the method of sample	Describe the level of drug in the body	3	2	3	3	2	2	3	3	3	3	3	3	2.5
5]	To perform time test by using the method of sample	Describe the level of drug in the body	3	3	3	3	2	2	3	3	3	3	3	3	2.6
6]	To perform time test by using the method of sample	Describe the level of drug in the body	3	2	3	3	3	2	3	3	3	3	3	3	2.7
7]	To perform time test by using the method of sample	Describe the level of drug in the body	3	3	2	3	3	2	3	3	3	3	3	3	2.5
8]	To perform time test by using the method of sample	Describe the level of drug in the body	3	2	3	3	3	2	3	3	3	3	3	3	2.6
9]	To perform time test by using the method of sample	Describe the level of drug in the body	3	3	3	3	3	2	3	3	3	3	3	3	2.6
10]	To perform time test by using the method of sample	Describe the level of drug in the body	3	3	2	3	3	2	3	3	3	3	3	3	2.7
11]	To perform time test by using the method of sample	Describe the level of drug in the body	3	3	3	3	3	2	3	3	3	3	3	3	2.7
12]	To perform time test by using the method of sample	Describe the level of drug in the body	3	3	3	3	3	2	3	3	3	3	3	3	2.7
13]	To perform time test by using the method of sample	Describe the level of drug in the body	3	3	2	3	3	2	3	3	3	3	3	3	2.7
	Average														

0 = No Relevance, Poor 1 = Low (33%), Average 2 = Medium (55%), Good High (100%), Excellent



26
 26
 = 2.6
 13/12/24



Founder

**MAHATMA GANDHI VIDYAMANDIR'S
SAMAJISRI PRASANTADADA HIRAY
COLLEGE OF PHARMACY**

Recognized by: Directorate of Technical Education, Mumbai
DTE Code: 5205 AISHE Code: C-41859 Exam Code: 1032

Approved by: Pharmacy Council of India, New Delhi
Affiliated to: Savitribai Phule Pune University, Pune (CPHIN18220), MSBTE (2142)

Name: Sakshi Rajaram Bhatni Subject: Human Anatomy & Physiology - II Academic Year: 2023-24 (2019 Pattern) Class: F.Y. B. Pharmacy

Sr.No.	Name of Experiment	Programme Outcomes												AVG
		1	2	3	4	5	6	7	8	9	10	11	12	
1.	To study integumentary & special senses using specimen, models etc.	3	2	2	3	2	3	2	2	3	2	3	3	2.5
2.	To study using specimen models, etc.	3	2	3	2	3	2	2	2	3	2	3	3	2.6
3.	To study recording of body temp.	2	3	3	3	3	2	2	3	2	3	2	2	2.3
4.	To demonstrate function of olfactory nerves	2	2	3	2	3	2	3	2	3	2	2	2	2.3
5.	To determine the of platelet count of blood sample.	2	2	3	2	3	2	3	2	3	2	2	2	2.4
6.	To determine osmotic fragility of R.G.C.	3	2	3	2	2	3	2	3	2	2	2	2	2.3
7.	To study digestive system with help of models & charts.	3	2	3	2	2	2	2	3	2	3	2	2	2.3
8.	To study recording of QMI.	3	3	2	3	2	2	3	3	3	3	3	3	2.6

0 = No Relevance, Poor

1 = Low (33%), Average

2 = Medium (55%), Good

3 = High (100%), Excellent



17269

06



**MAHATMA GANDHI VIDYAMANDIR'S
SAMAJSHRI PRASHANTDADA IIRAY
COLLEGE OF PHARMACY**

Approved by: Pharmacy Council of India, New Delhi
 Affiliated to: Savitribai Phule Pune University, Pune (CPHINR220), MSHEE (2142)
 Recognized by: Directorate of Technical Education, Mumbai
 DTE Code:5205 AISHE Code:C-41859 Exam Code:1032

Name: **Sakshi Rajaram Gharti** Subject: **HAP-II** Class: **F-Y B. Pharmacy**
 Academic Year: **2023-24** (2019 Pattern)

Sr. No.	Name of Experiment	Unit Outcomes	Programme Outcomes														
			1	2	3	4	5	6	7	8	9	10	11	12	Avg		
9.	To study the differentials leukocyte count of a blood sample. To study respiratory system with help of charts, models, etc. To demonstrate visual acuity.	Students will able to To study DLC count of own blood sample. To study respiratory system help of model.	3	3	2	2	3	2	2	3	2	3	3	2	3	3	2.5
10.	To demonstrate visual acuity.	To demonstrate visual acuity	3	2	3	3	2	2	3	3	2	3	2	3	2	3	2.5
11.	To demonstrate reflex activity.	To demonstrate visual acuity To demonstrate reflex activity	3	3	2	3	2	2	3	3	2	3	2	3	2	3	2.6
12.	To demonstrate the general neurological examination.	To demonstrate reflex activity To demonstrate the general neurological examination.	3	3	2	3	2	2	3	3	2	3	2	3	2	3	2.3
13.	To demonstrate reflex activity.	To demonstrate reflex activity	2	2	2	3	3	2	3	2	3	2	3	2	3	2.4	
14.	To demonstrate +ve feedback system & to study endocrine system using specimen model, etc.	To demonstrate +ve feedback To study endocrine system with help of model, charts.	2	3	2	3	2	2	3	2	3	2	3	2	3	2.5	
15.	To study family planning devices & pregnancy diagnosis Test.	To study endocrine system with help of model, charts. To study of family planning	3	3	3	2	3	2	3	2	3	2	3	2	2	2.6	
16.			2	3	2	3	2	2	3	2	3	2	3	2	2	2.3	
		Average														39.1	
																2.4	



0 = No Relevance, Poor 1 = Low (33%), Average 2 = Medium (55%), Good 3 = High (100%)



Special madam

MAHATMA GANDHI VIDYAMANDIR'S
SAMAJSHRI PRASHANTDADA HIRAY
COLLEGE OF PHARMACY

Approved by: Pharmacy Council of India, New Delhi
 Affiliated to: Savitribai Phule Pune University, Pune (CPHNI18220), MSBTE (2142)
 Recognized by: Directorate of Technical Education, Mumbai
 DTE Code: 5205 AISHE Code: C-41859 Exam Code: 1032

Name: Yaishnavi Raasahab Shirole Subject: Biochemistry Academic Year: 2023-24 Pattern: 2019 Class: FY - B. Pharmacy

Sr. No.	Name of Experiment	Unit Outcomes												Avg
		1	2	3	4	5	6	7	8	9	10	11	12	
1.	Identification of given sample of carbohydrate (glucose)	3	2	2	2	3	2	2	3	2	3	3	2	2.5
2.	To perform identification test for given carbohydrate sample (Fructose)	3	2	3	3	2	3	2	3	2	3	3	2	2.5
3.	Sample (Fructose) To perform identification test for given carbohydrate sample (Sucrose)	2	3	2	3	2	3	2	3	2	3	2	3	2.6
4.	To perform identification test for given carbohydrate sample (Starch)	2	3	3	2	3	2	3	2	3	2	3	2	2.6
5.	To perform identification test for given carbohydrate sample (glucose)	3	3	3	2	3	2	3	2	3	2	3	2	2.4
6.	To perform identification test for given carbohydrate sample (lactose)	3	2	2	3	2	2	3	2	3	2	3	2	2.4
7.	test for given carbohydrate sample (maltose)	2	3	2	3	3	2	3	2	3	2	3	2	2.4
8.	To perform identification test for given carbohydrate sample (Protein)	2	3	2	3	2	2	3	2	3	2	3	2	2.4

0 = No Relevance, Poor 1 = Low (33%), Average 2 = Medium (55%), Good 3 = High (100%), Excellent





**MAHATMA GANDHI VIDYAMANDIR'S
SAMA JSHRI PRASHANT DADA HIRAY
COLLEGE OF PHARMACY**

Recognized by: Directorate of Technical Education, Mumbai
DTE Code: 5205 AISHE Code: C-41859 Exam Code: 1032

Approved by: Pharmacy Council of India, New Delhi
Affiliated to: Savitribai Phule Pune University, Pune (CPHIN18220), MSBTE (2142)

Name: _____ Academic Year: _____ (_____ Pattern) Class: _____ B, Pharmacy

Sr. No.	Name of Experiment	Unit Outcomes	Programme Outcomes															
			1	2	3	4	5	6	7	8	9	10	11	12	Avg			
9.	To perform identification test for protein (Gelatin)	Students will able to identify given protein sample	3	2	3	3	3	2	2	3	2	2	3	2	3	2	3	2.4
10.	To perform qualitative analysis of urine (Normal constituent)	perform qualitative analysis of give Urine sample	3	3	2	3	2	2	3	2	3	2	3	2	3	2	3	2.5
11.	To perform qualitative analysis of urine (Abnormal constituent)	perform qualitative analysis of give urine sample	2	3	3	2	2	3	2	3	2	3	2	3	2	3	2	2.5
12.	To perform identification test for protein sample (Albumin)	identify given protein sample (Albumin)	3	3	2	2	2	2	3	3	3	3	3	3	3	2	3	2.6
13.	To perform identification test for given protein sample (peptone)	identify given protein sample (peptone)	2	3	2	3	2	2	2	2	2	2	3	2	3	2	3	2.4
14.	To determine the pH of phosphate buffer	Identify the pH of phosphate buffer	3	3	2	3	2	2	2	3	2	2	2	3	2	3	2	2.5
		Average													34.8			
															4.8 - 2.4			



0 = No Relevance, Poor 1 = Low (33%), Average 2 = Medium (55%), Good 3 = High (100%)



**MAHATMA GANDHI VIDYAMANDIR'S
SAMAJSHRI PRASHANTDADA HIRAY
COLLEGE OF PHARMACY**

Approved by: Pharmacy Council of India, New Delhi
 Affiliated to: Savitribai Phule Pune University, Pune (CPHN18220), MSBTE (2142)
 Recognized by: Directorate of Technical Education, Mumbai
 DTE Code: 5205 AISHE Code: C-41859 Exam Code: 1032

Name: Phire Sharada Nimult Subject: Pharmacological Microbiology Academic Year: 2023-24 (2019 Pattern) Class: 5-Y. B. Pharmacy

Sr. No.	Name of Experiment	Unit Outcomes	Programme Outcomes												AVG
			1	2	3	4	5	6	7	8	9	10	11	12	
1.	To study microscope.	Understand the parts of microscope.	2	2	2	3	3	2	2	3	3	3	3	2	2.5
2.	Instrument use in microscope lab.	Understand the instrument use in microscope.	2	3	2	3	3	2	2	3	3	3	3	2	2.5
3.	Sterilization of glass ware	Understand the sterilization of glassware.	3	2	3	3	2	3	3	3	3	2	3	3	2.7
4.	Nutrient slants & streaking	Understand the nutrient slants & streaking technique.	2	3	3	3	3	3	2	3	3	2	3	3	2.7
5.	Simple staining.	Staining technique	2	3	3	3	3	3	2	3	3	2	3	2.6	
6.	Gram staining.	growth of microbes	3	2	3	3	2	3	3	3	2	3	3	2.3	
7.	Acid-fast staining.	microbial growth in acid sample	2	2	3	2	2	2	2	3	3	2	3	2.5	
8.	Isolate pure culture by streak plate method	Isolation by culture media.	3	2	3	2	2	3	2	2	2	3	3	2.5	
9.	Isolate pure culture by streak plate method.	Isolation by pour plate method	3	2	3	2	2	3	2	3	2	3	3	2.5	
10.	Viability of microscope organisms by hanging drop method.	understand the hanging drop tech.	2	3	3	3	2	2	3	3	3	2	2	2.5	
11.	Antimicrobial activity of Volatile oil.	antimicrobial activity.	2	3	3	2	3	2	3	3	3	2	2	2.5	
Average			27.8	27.8	27.8	27.8	27.8	27.8	27.8	27.8	27.8	27.8	27.8	27.8	2.53

0 = No Relevance, Poor 1 = Low (33%), Average 2 = Medium (55%), Good 3 = High (100%)





**MAHATMA GANDHI VIDYAMANDIR'S
SAMAJSHRI PRASHANTDADA HIRAY
COLLEGE OF PHARMACY**

Recognized by: Directorate of Technical Education, Mumbai
DTE Code: 5205 AISHE Code: C-41859 Exam Code: 1032

Approved by: Pharmacy Council of India, New Delhi
Affiliated to: Savitribai Phule Pune University, Pune (CPHN18220), MSBTE (2142)

Class: S.Y. B. Pharmacy

Academic Year: 23-24 (2019 Pattern)

Name: Phire Sharada Nivutti

Subject: Pharmacognosy & Phytochemistry - I

Sr. No.	Name of Experiment	Programme Outcomes												Avg	
		Unit Outcomes	1	2	3	4	5	6	7	8	9	10	11		12
1	To study about microscope.	Students will able to learn & understand compound microscope.	2	3	2	3	2	3	2	2	3	2	3	2	2.45
2	Introduction to Comera lucida.	understand about chemical test.	2	2	3	3	2	3	2	3	3	2	3	2	2.45
3	Analysit of crude drug - Tragacanth, Acaia.	understand about analysis of crude drugs.	2	3	2	2	3	2	3	3	3	3	3	2	2.72
4	Agar, gelatin.	understand about starch, honey, castor oil.	2	2	3	3	2	3	2	3	3	3	3	2	2.63
5	To determine loss of drying for given crude drug.	understand about Swelling index.	3	3	3	3	2	3	2	3	3	3	3	2	2.45
6	Determination of Permeation index.	understand about Swelling index.	3	3	3	3	3	2	3	3	3	3	3	2	2.72
7	Permeation index.	understand about Swelling index.	3	3	3	3	3	2	3	3	3	3	3	2	2.45
8	Permeation foaming index.	understand about Swelling index.	3	3	3	3	3	2	3	3	3	3	3	2	2.45
9	Permeation extractive value.	understand about Swelling index.	3	3	3	3	3	2	3	3	3	3	3	2	2.63
10	Permeation Ash value.	understand about Swelling index.	3	3	3	3	3	2	3	3	3	3	3	2	2.45
11	Permeation to microemetry.	understand about Swelling index.	3	3	3	3	3	2	3	3	3	3	3	2	2.45
12	Permeation to microemetry.	understand about Swelling index.	3	3	3	3	3	2	3	3	3	3	3	2	2.72
13	Permeation to microemetry.	understand about Swelling index.	3	3	3	3	3	2	3	3	3	3	3	2	2.72
14	Permeation to microemetry.	understand about Swelling index.	3	3	3	3	3	2	3	3	3	3	3	2	2.54
15	Permeation to microemetry.	understand about Swelling index.	3	3	3	3	3	2	3	3	3	3	3	2	2.54

Average = $\frac{40.73}{15} = 2.7$





MAHATMA GANDHI VIDYAMANDIR'S
SAMAJSHRI PRASHANTDADA HIRAY
COLLEGE OF PHARMACY

Approved by: Pharmacy Council of India, New Delhi
Affiliated to: Savitribai Phule Pune University, Pune (CPHN18220), MSBTE (2142)
Recognized by: Directorate of Technical Education, Mumbai
DTE Code: 5205 AISHE Code: C-41859 Exam Code: 1032

Name: Ahite Vishnavi Sanjay Subject: Pharmacognosy - I Academic Year: 2023-24 Pattern: 24 Class: 5th R. Pharmacy

Sr. No.	Name of Experiment	Unit Outcomes												Avg.
		1	2	3	4	5	6	7	8	9	10	11	12	
1	To study microscopically Introduction to camera lucida	2	3	3	3	3	3	3	3	3	3	3	3	2.7
2	Analysis of crude drug by chemical test	2	3	3	3	3	3	3	3	3	3	3	3	2.9
3	1) Tragacanth 2) Ricin 3) Castor oil	3	3	3	3	3	3	3	3	3	3	3	3	2.8
4	Analysis of crude drug by chemical test	3	2	3	3	3	3	3	3	3	3	3	3	2.8
5	1) Honey 2) Castor oil	3	3	2	3	3	3	3	3	3	3	3	3	2.8
6	To determine loss of weight during storage of crude drug	3	3	2	3	3	3	3	3	3	3	3	3	2.8
7	1) Starch 2) Gum 3) Resin	3	2	3	3	3	3	3	3	3	3	3	3	2.7
8	To determine the form of crude drug	3	3	3	3	3	2	3	3	3	3	3	3	2.8
9	To determine the source of crude drug	3	3	3	2	3	3	3	3	3	3	3	3	2.9
Average														

0 = No Relevance, Poor 1 = Low (33%), Average 2 = Medium (55%), Good 3 = High (100%)





**MAHATMA GANDHI VIDYAMANDIR'S
SAMAJSHRI PRASHANTDADA HIRAY
COLLEGE OF PHARMACY**

Approved by: Pharmacy Council of India, New Delhi
 Affiliated to: Savitribai Phule Pune University, Pune (CPHNI18220), MSBTE (2142)
 Recognized by: Directorate of Technical Education, Mumbai
 DTE Code:5205 AISHE Code:C-41859 Exam Code:1032

Name: Narcho Robini Suresh Subject: Pharmacology -I Academic Year: 2018-2019 (Pattern) Class: S.Y. B. Pharmacy

Sr. No.	Name of Experiment	Unit Outcomes	Programme Outcomes												AVG	
			1	2	3	4	5	6	7	8	9	10	11	12		
1	Intro. to experimental pharmacology	Understand the factors of pharmacokinetics	3	3	2	2	2	2	2	2	2	2	2	2	2	2.4
2	To study commonly used laboratory pharmacology	Learn principles of laboratory pharmacology	2	2	3	3	2	2	2	2	2	2	2	2	2	2.5
3	To study common laboratory animal	Understand use of animal	2	2	2	2	2	2	2	2	2	2	2	2	2	2.3
4	To study the route to administration	Learn about different routes of drug administration	2	3	2	3	3	3	3	3	3	3	3	3	3	2.9
5	To study effect of drug on cardiac activity	Learn about effect of drug on heart	3	3	3	3	3	3	3	3	3	3	3	3	3	2.7
6	To study quantitative of lab. animal as per asph	Learn about lab. animal	3	3	3	3	3	3	3	3	3	3	3	3	3	2.9
7	To study peripheral venous blood withdrawal	Understand of peripheral venous blood withdrawal	3	2	3	3	3	3	3	3	3	3	3	3	3	2.9
8	To study effect of skeletal muscle relaxation	Learn about effect of drug on skeletal muscle	3	3	2	2	2	2	2	2	2	2	2	2	2	2.5
9	To study effect of drug on rabbit eye	Learn about effect of drug on eye	3	3	3	3	3	3	3	3	3	3	3	3	3	2.6
10	To study effect of drug on locomotion	Learn about effect of drug on locomotion	3	2	2	2	2	2	2	2	2	2	2	2	2	2.4
11	To study effect of drug on psychic	Learn about effect of drug on psychic	2	3	3	3	3	3	3	3	3	3	3	3	3	2.3
12	To study effect of drug on local anesthetic	Learn about effect of drug on local anesthetic	3	3	3	2	2	2	2	2	2	2	2	2	2	2.3
13	To study local anesthetic method	Learn about effect of drug on local anesthetic	3	2	2	2	2	2	2	2	2	2	2	2	2	2.0
Average																2.5

0 = No Relevance, Poor 1 = Low (33%), Average 2 = Medium (55%), Good



Average 2.5
 (55%), Excellent



**MAHATMA GANDHI VIDYAMANDIR'S
SAMAJSRI PRASHANTDADA HIRAY
COLLEGE OF PHARMACY**

Approved by: Pharmacy Council of India, New Delhi
Affiliated to: Savitribai Phule Pune University, Pune (CPHNI8220), MSBTE (2142)

Recognized by: Directorate of Technical Education, Mumbai
DTE Code: 5205 AISHE Code: C-41859 Exam Code: 1032

Name: Pooval Bhumi Kamlesh

Subject: Pharmacology - I

Academic Year: 2023 - (2019 Pattern)

Class: 3rd Y. B. Pharmacy

24

Sr. No.	Name of Experiment	Unit Outcomes												Avg		
		Students will able to	1	2	3	4	5	6	7	8	9	10	11		12	
1.	Introduction to experiment of pharmacology	Study about- pharmacology	2	3	3	3	3	3	3	3	3	3	3	3	3	2.7
2.	To study commonly used instrument in experiment in pharmacology	Study about- instrument in pharmacology	2	3	3	3	3	3	3	3	3	3	3	3	3	2.8
3.	To study the common laboratory animals.	study about- animals	3	3	3	3	3	3	3	3	3	3	3	3	3	2.9
4.	Study maintenance routes of administration in mice card.	Basic pharmacological knowledge	3	2	3	3	3	3	3	3	3	3	3	3	2	2.8
5.	To study effect of drug on ciliary motility of frog esophagus	study about- pharmacology	3	3	2	3	3	3	3	3	3	3	3	3	3	2.8
6.	To study maintenance of PCSEH guidelines	study about- animals	3	3	2	3	3	3	3	3	3	3	3	3	3	2.8
7.	To study common laboratory technique blood withdrawal Serum & plasma separation anaesthesia & euthanasia	study about- pharmacology	3	2	3	3	3	3	3	3	3	3	3	3	2	2.7
		Average														

0 = No Relevance, Poor 1 = Low (33%), Average

2 = Medium (55%), Good

3 = High (100%), Excellent





Samajshri Prashantdada Hiray College of Pharmacy

Mahatma Gandhi Vidyamandir's
Loknete Wankarao Hiray Marg, Malajgaon Camp (Nashik)
Affiliated to Savitribai Phule Pune University (CPHNO18220)
Approved by A.I.C.T.E., P.C.I. (New Delhi), D.T.E. (Mumbai) & State Govt. of Maharashtra
Tele Fax : (02554) 252563 Email : splngv@yahoo.co.in Website : www.kbhgroup.in



Name: **Jadhav Pallavi Madhukor** Subject: **Medicinal Chemistry -III** Academic Year: **2019-2020** (2019 pattern) Class: **T.Y B.Pharm**

Sr. No.	Name of Experiment	Unit outcomes	Programme Outcome											Avg		
			1	2	3	4	5	6	7	8	9	10	11			
1	To perform synthesis of p-ocetoni - debarzene sulphanyl chloride To perform synthesis of acetone benzene sulphenamide.	Principle of reaction, category of reaction or molecule. Type of reaction, principle, physical properties of drug Principle of reaction, uses of drug	3	2	3	3	3	3	3	3	3	3	3	3	3	2.7
2	To perform synthesis of sulfonamide from p-aminobenzene sodium chloride.	Principle of reaction, uses of drug	3	3	3	2	3	3	2	3	3	3	3	3	3	2.8
3	To perform synthesis of chlorobutanol from acetone	It's principle, reaction, mechanism.	3	2	3	3	3	3	2	3	3	3	3	3	3	2.7
4	To perform synthesis of methyl salicylate from salicylic acid	It's principle, uses of drug, physical properties, reaction, mechanism's	3	3	2	3	3	3	3	3	2	3	3	3	3	2.8
5	To perform synthesis of 4-methyl 3-hydroxy coumarin.	It's physical properties, reaction, mechanism's	3	1	3	3	3	3	2	3	3	3	3	3	3	2.7
6	To perform drug life lines penicillin using swiss chine	Physical properties, medicinal uses, application	3	2	2	3	3	3	3	3	3	3	3	3	3	2.8
7	To perform drug life lines penicillin using swiss chine	Pharmacological properties, application.	2	3	3	1	3	3	3	3	3	3	3	3	3	2.7
8	To perform drug life lines penicillin using swiss chine	Pharmacological properties, medicinal chemistry context.	3	3	3	2	2	3	3	3	3	3	3	3	3	2.8
9	Using swiss chine software, to perform synthesis of benzimidazole from diazole.	It's principle reaction, mechanism uses.	3	1	3	2	3	3	3	3	3	3	3	3	3	2.7
10	Redox reactions from diazole. To perform synthesis of benzimidazole by using microwave zone by using microwave assigned & irradiation technique.	Importance of green chemistry, principle.	3	1	3	3	3	3	3	3	3	3	3	3	3	2.8
11	To perform synthesis of menthyl salicylate by microwave irradiation technique	Importance of green chemistry, principle.	3	2	3	3	3	3	3	3	3	3	3	3	3	2.9
12	To perform synthesis of menthyl salicylate by microwave irradiation technique	Drug design, it's principle, It's real, principle.	2	3	3	3	3	3	3	3	3	3	3	3	3	2.9
13	Draw structure of heterocyclic compound read by using ChemDraw Software.	Drug design, it's principle, application.	2	3	3	3	3	3	2	3	3	3	3	3	3	2.8
14	Draw structure of heterocyclic compound read by using ChemDraw Software.	Drug design, it's principle, application.	2	3	3	3	3	3	2	3	3	3	3	3	3	2.8
		Average = 2.7														2.7
																1.9
																2.9

0=no relevance, poor 1=low (33%), Avg 2=Medium (55%), good 3=High (100%), excellent





Roll No: 30
Unisect no: 17348

**SAMAJSRI PRASHANTDADA HIRAY
COLLEGE OF PHARMACY**

Approved by: Pharmacy Council of India, New Delhi
Affiliated to: Savitribai Phule Pune University, Pune (CPHN18220), MSBTE (2142)
Recognized by: Directorate of Technical Education, Mumbai
DTE Code:5205 AISHE Code:C-41859 Exam Code:1032

Name: Khajnar shubham Arun Subject: pharmacology-III Academic Year: 2023-24 (2019 Pattern) Class: T.Y. B. Pharmacy

Sr.No.	Name of Experiment	Unit Outcomes												Avg	
		1	2	3	4	5	6	7	8	9	10	11	12		
1.	Study of mydriatic and miotic effect on Rabbit eyes.	3	3	3	3	3	2	3	3	3	3	3	3	3	2.91
2.	Study of effect of physostigmine on the eye of rabbit.	3	3	3	3	3	3	2	3	3	1	3	3	2	2.66
3.	Study the effect of atropine on rat eye.	3	3	3	3	3	3	3	2	3	3	3	3	3	2.91
4.	Study the effect of drug on gastrointestinal motility.	3	3	3	3	3	3	3	2	3	3	3	3	2	2.58
5.	Study the effect of drug on blood pressure of guinea pig.	3	3	3	3	2	3	3	3	2	3	3	3	1	2.5
6.	Study the effect of drug on heart rate of guinea pig.	3	3	3	3	3	3	3	3	2	3	3	3	3	2.75
7.	Study the effect of drug on blood sugar of guinea pig.	3	1	3	3	3	3	2	3	3	3	3	3	3	2.75
8.	Study the effect of drug on blood sugar of guinea pig.	3	3	2	3	3	3	2	3	3	3	3	3	2	2.58
9.	Study the effect of drug on blood sugar of guinea pig.	3	3	3	3	3	2	3	3	3	3	3	3	2	2.58
10.	Study the effect of drug on blood sugar of guinea pig.	3	3	3	3	3	3	3	3	3	3	3	3	3	2.83
11.	Study the effect of drug on blood sugar of guinea pig.	3	2	3	3	3	3	3	3	3	3	3	3	2	2.66
12.	Study the effect of drug on blood sugar of guinea pig.	3	3	3	3	3	3	3	3	3	3	3	3	3	2.33
13.	Study the effect of drug on blood sugar of guinea pig.	3	3	3	3	3	3	3	3	3	3	3	3	2	2.83
14.	Study the effect of drug on blood sugar of guinea pig.	3	3	3	3	3	3	3	3	3	3	3	3	2	2.66
Average															2.65



Signature: _____
Date: _____

Excellent



**MAHATMA GANDHI VIDYAMANDIR'S
SAMI SRI PRASHANT DADA HIRAY
COLLEGE OF PHARMACY**

Roll No : 26
Seat No : 13317

Approved by: Pharmacy Council of India, New Delhi
Affiliated to: Savitribai Phule Pune University, Pune (CPHIN18220), MSBTE (2142)

Recognized by: Directorate of Technical Education, Mumbai
DTE Code:5205 AISHE Code:C-41859 Exam Code:1032

Name: Jadhav Palkavi Madhukar Subject: Herbal Drug Technology Academic Year: 2023-2024 (2019 Pattern) Class: T.Y. B. Pharmacy

Sr. No.	Name of Experiment	Programme Outcomes												Avg
		1	2	3	4	5	6	7	8	9	10	11	12	
1	To evaluate the excipient of natural origin. Investigate use in Pharmac and evaluate synthetic herbals.	3	3	3	3	2	2	3	3	2	3	3	3	2.7
2	Herbal cream preparation and storage stability of herbal lotion.	3	3	3	3	3	3	2	3	3	3	3	3	3.0
3	To prepare + evaluate and submit herbal syrup. (classm.)	3	3	3	3	2	3	1	3	3	3	3	3	2.7
4	To prepare + evaluate mouth - Shirokai, shampoo.	3	3	3	3	3	3	3	3	3	3	3	3	2.8
5	To prepare + evaluate 50mg tablet.	3	1	3	3	3	3	3	3	3	3	3	3	2.8
6	To perform monograph analysis of including name, family, uses, constitution of ASQA + Phisistis.	3	3	2	2	3	3	3	3	3	3	3	3	2.8
8	To study the chemical content in lemon oil.	3	3	3	1	3	3	3	3	3	3	3	3	2.7
9	To study the determination of ascorbic acid equivalent in (HPLC) to determine phenol content.	3	3	3	3	3	3	3	3	3	3	3	3	2.9
10	To study the determination of total alkaloid content.	3	2	3	3	3	1	3	3	3	3	3	3	2.8
11	To perform preliminary phytochemical screening of ginseng.	3	3	3	1	3	3	3	3	3	3	3	3	2.9
12	Preparation + evaluation of Churna mixture.	3	3	3	3	3	3	3	3	3	3	3	3	2.7
13	To study the monograph analysis of castor oil.	3	3	3	3	3	3	3	3	3	3	3	3	2.7
14														
Average = 2.7														

0 = No Relevance, Poor 1 = Low (33%), Average 2 = Medium (55%), Good



39
14
= 2.7