Syllabus-2023-2024

BPharm

Title of the Course	Environmental sciences *
Course Code	BP206T

Part A

Year	1st	**Semester**	2nd	**Credits**	L	T	P	C
					3	0	0	3
Course Type	Theory only							
Course Category	Discipline Core							
Pre-Requisite/s				**Co-Requisite/s**				
Course Outcomes & Bloom's Level	**CO1-** To extend basic knowledge on environment and its allied problems**(BL1-Remember)** **CO2-** To compare the natural, renewable and nonrenewable resources and the problems associated with them.**(BL2-Understand)** **CO3-** To motivate the learners to participate in environment protection and improvement.**(BL3-Apply)** **CO4-** To analyze the concepts of eco system including structure and functions.**(BL4-Analyze)** **CO5-** To implement skills in identifying and solving environmental problems.**(BL3-Apply)**							
Coures Elements	Skill Development ✕ Entrepreneurship ✕ Employability ✕ Professsonal Ethics ✕ Gender ✕ Human Values ✓ Environment ✓		**SDG (Goals)**	SDG3(Good health and well-being) SDG4(Quality education) SDG7(Affordable and clean energy) SDG11(Sustainable cities and economies) SDG12(Responsible consuption and production) SDG13(Climate action) SDG15(Life on land)				

Part B

Modules	Contents	Pedagogy	Hours
UNIT 1	The Multidisciplinary nature of environmental studies Natural Resources Renewable and non-renewable resources: Natural resources and associated problems a) Forest resources; b) Water resources; c) Mineral resources; d) Food resources; e) Energy resources; f) Land resources: Role of an individual in conservation of natural resources.	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	10
UNIT 2	Ecosystems Concept of an ecosystem. Structure and function of an ecosystem. Introduction, types, characteristic features, structure and function of the ecosystems: Forest ecosystem; Grassland ecosystem; Desert ecosystem; Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)	Class out of classroom	10
UNIT 3	Environmental Pollution: Air pollution; Water pollution; Soil pollution	Peer Tutorial	10

Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
1	assesment of air pollution in different area of Gwalior	Case Study	BL4-Analyze	10

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
75	38	50	25	25	13
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**

Part E

Books	1. Y.K. Sing, Environmental Science, New Age International Pvt, Publishers, Bangalore 2. Agarwal, K.C. 2001 Environmental Biology, Nidi Publ. Ltd. Bikaner. 3. Bharucha Erach, The Biodiversity of India, Mapin Publishing Pvt. Ltd., Ahmedabad – 380 013, India
Articles	https://byjus.com/commerce/meaning-and-functions-of-environment/
References Books	1. Brunner R.C., 1989, Hazardous Waste Incineration, McGraw Hill Inc. 480p 2. Clark R.S., Marine Pollution, Clanderson Press Oxford 3. Cunningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 2001, Environmental Encyclopedia, Jaico Publ. House, Mumbai, 1196p 4. De A.K., Environmental Chemistry, Wiley Eastern Ltd. 5. Down of Earth, Centre for Science and Environment
MOOC Courses	https://www.edx.org/executive-education/university-of-cambridge-sustainable-real-estate-creating-a-better-built-environment?index=product&queryID=3b6747e421640130281f318eaa4efea1&position=1&linked_from=autocomplete&c=autocomplete
Videos	https://www.youtube.com/watch?v=oD7d34bIMxQ

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	3	-	-	-	2	-	-	-	-
CO2	-	-	-	-	-	-	3	-	-	-	3	-	-	-	-
CO3	-	-	-	-	-	-	3	1	-	-	2	-	-	-	-
CO4	-	-	-	-	-	-	3	-	-	-	1	-	-	-	-
CO5	-	-	-	-	-	-	2	1	-	-	2	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Syllabus-2023-2024

BPharm

Title of the Course	Fine art and Music II *
Course Code	BP211T

Part A

Year	1st	**Semester**	2nd	**Credits**	L	T	P	C
					1	0	0	1
Course Type	Theory only							
Course Category	Generic Elective							
Pre-Requisite/s				**Co-Requisite/s**				
Course Outcomes & Bloom's Level	**CO1-** Study of two-dimensional space and its organizational possibilities**(BL2-Understand)** **CO2-** Study of three-dimensional space and its organizational possibilities**(BL2-Understand)**							
Coures Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✕ Professsonal Ethics ✕ Gender ✕ Human Values ✓ Environment ✕		**SDG (Goals)**	SDG4(Quality education)				

Part B

Modules	Contents	Pedagogy	Hours

Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
1	2-D Design: 2 3-D Design: 2	Experiments	BL3-Apply	5

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
25	13	15	8	10	5
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
	0				

Part E

Books	Ie Design Basics 2d and 3d 3e Pentak Roth Published by Cengage Learning, 2012 ISBN 10: 1111833923ISBN 13: 9781111833923
Articles	NA
References Books	Design Basics: 2D and 3D (with CourseMate Printed Access Card) Pentak, Stephen,Roth, Richard,Lauer, David A. ISBN 10: 0495909971 / ISBN 13: 9780495909972
MOOC Courses	https://www.coursera.org/specializations/graphic-design
Videos	https://www.youtube.com/watch?v=cYzbStq5lWs

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	-	-	-	-	-	-	-	-	2	2	-	-	-	-
CO2	2	-	-	-	-	-	-	-	-	1	3	-	-	-	-
CO3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Syllabus-2023-2024

BPharm

Title of the Course	Fine art and Music III/online certification course *
Course Code	BP309T

Part A

Year	2nd	**Semester**	3rd	**Credits**	L	T	P	C
					0	0	1	1
Course Type	Theory only							
Course Category	Generic Elective							
Pre-Requisite/s				**Co-Requisite/s**				
Course Outcomes & Bloom's Level	**CO1-** Study of two-dimensional space and its organizational possibilities Study of three-dimensional space and its organizational possibilities **(BL2-Understand)** **CO2-** Study of three-dimensional space and its organizational possibilities**(BL2-Understand)**							
Coures Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✕ Professsonal Ethics ✕ Gender ✕ Human Values ✓ Environment ✕		**SDG (Goals)**	SDG4(Quality education)				

Part B

Modules	Contents	Pedagogy	Hours

Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
1	2-D Design: 2 3-D Design: 2	PBL	BL2-Understand	4

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
25		20	10	5	2
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
	0				

Part E

Books	
Articles	
References Books	
MOOC Courses	
Videos	

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Syllabus-2023-2024

BPharm

Title of the Course	Pharmaceutical Jurisprudence
Course Code	BP505T

Part A

Year	3rd	**Semester**	5th	**Credits**	L	T	P	C
					3	1	0	4
Course Type	Theory only							
Course Category	Discipline Core							
Pre-Requisite/s				**Co-Requisite/s**				
Course Outcomes & Bloom's Level	**CO1-** To recall the pharmaceutical legislations, ethics, right to information, medical termination of pregnancy and intellectual property rights**(BL1-Remember)** **CO2-** To relate the significance of Drugs and cosmetics act 1940 and its rules 1945 in relation to import and manufacture of drugs**(BL2-Understand)** **CO3-** To apply the knowledge on schedules pertaining to Drugs and cosmetics act 1940 and its rules 1945 and also administration of the act and rules**(BL3-Apply)** **CO4-** To understand the functions of pharmacy councils and implementation of education regulations in pharmacy**(BL2-Understand)** **CO5-** To appraise the importance of medicinal and toilet preparations act and narcotic drugs and psychotropic substances act and rules**(BL5-Evaluate)**							
Coures Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✕ Professsonal Ethics ✓ Gender ✓ Human Values ✓ Environment ✕		**SDG (Goals)**	SDG3(Good health and well-being) SDG4(Quality education) SDG5(Gender equality) SDG10(Reduced inequalities) SDG12(Responsible consuption and production)				

Part B

Modules	Contents	Pedagogy	Hours
1	Drugs and Cosmetics Act, 1940 and its rules 1945: Objectives, Definitions, Legal definitions of schedules to the Act and Rules Import of drugs – Classes of drugs and cosmetics prohibited from import, Import under license or permit. Offences and penalties. 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, loan license and repacking license.	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	10
2.	Drugs and Cosmetics Act, 1940 and its rules 1945. Detailed study of Schedule G, H, M, N, P, T, U, V, X, Y, Part XII B, Sch F & DMR (OA) Sale of Drugs – Wholesale, Retail sale and Restricted license. Offences and penalties Labeling & packing of drugs- General labeling requirements and specimen labels for drugs and cosmetics, List of permitted colors. Offences and penalties. Administration of the Act and Rules – Drugs Technical Advisory Board, Central drugs Laboratory, Drugs Consultative Committee, Government drug analysts, licensing authorities, controlling authorities, Drugs Inspectors	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	10
3.	Pharmacy Act –1948: Objectives, Definitions, Pharmacy Council of India; its constitution and functions, Education Regulations, State and Joint state pharmacy councils; constitution and functions, Registration of Pharmacists, Offences and Penalties Medicinal and Toilet Preparation Act –1955: Objectives, Definitions, Licensing, Manufacture In bond and Outside bond, Export of alcoholic preparations, Manufacture of Ayurvedic, Homeopathic, Patent & Proprietary Preparations. Offences and Penalties. Narcotic Drugs and Psychotropic substances Act-1985 and Rules: Objectives, Definitions, Authorities and Officers, Constitution and Functions of narcotic & Psychotropic Consultative Committee, National Fund for Controlling the Drug Abuse, Prohibition, Control and Regulation, opium poppy cultivation and production of poppy straw, manufacture, sale and export of opium, Offences and Penalties	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	10
4	Study of Salient Features of Drugs and Magic Remedies Act and its rules: Objectives, Definitions, Prohibition of certain advertisements, Classes of Exempted advertisements, Offences and Penalties Prevention of Cruelty to animals Act-1960: Objectives, Definitions, Institutional Animal Ethics Committee, CPCSEA guidelines for Breeding and Stocking of Animals, Performance of Experiments, Transfer and acquisition of animals for experiment, Records, Power to suspend or revoke registration, Offences and Penalties National Pharmaceutical Pricing Authority: Drugs Price Control Order (DPCO)-2013. Objectives, Definitions, Sale prices of bulk drugs, Retail price of formulations, Retail price and ceiling price of scheduled formulations, National List of Essential Medicines (NLEM)	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	8
5	Pharmaceutical Legislations – A brief review, Introduction, Study of drugs enquiry committee, Health survey and development committee, Hathi committee and Mudaliar committee Code of Pharmaceutical ethics Definition, Pharmacist in relation to his job, trade, medical profession and his profession, Pharmacist's oath Medical Termination of Pregnancy Act Right to Information Act Introduction to Intellectual Property Rights (IPR)	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	7

Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
1	visit of Wholesale, Retail sale and Restricted license.	Field work	BL2-Understand	6

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	50	75	38	25	13
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**

Part E

Books	1. A text book of Forensic Pharmacy by N.K. Jain 2. Drugs and Cosmetics Act/Rules by Govt. of India publications. 3. Medicinal and Toilet preparations act 1955 by Govt. of India publications
Articles	https://www.iptsalipur.org/wp-content/uploads/2020/08/BP505T-PJ-UNIT_III.pdf
References Books	1 Medicinal and Toilet preparations act 1955 by Govt. of India publications. 2. Narcotic drugs and psychotropic substances act by Govt. of India publications 3. Drugs and Magic Remedies act by Govt. of India publication 4. Bare Acts of the said laws published by Government. Reference books (Theory
MOOC Courses	https://nptel.ac.in/
Videos	You tube

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	3	-	-	-	-	-	2	3
CO2	-	-	-	-	-	-	-	3	-	1	-	-	1	2	2
CO3	-	-	-	-	-	-	-	3	-	-	-	-	1	2	-
CO4	-	-	-	-	-	-	-	3	-	1	-	-	-	-	3
CO5	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Syllabus-2023-2024

BPharm

Title of the Course	International Regulatory Requirements for Good Manufacturing Practices
Course Code	BP510ET

Part A

Year	3rd	**Semester**	5th	**Credits**	L	T	P	C
					1	0	0	1
Course Type	Theory only							
Course Category	Discipline Specific Elective							
Pre-Requisite/s				**Co-Requisite/s**				
Course Outcomes & Bloom's Level	**CO1-** Understand the different quality level for global regulatory agency **(BL2-Understand)** **CO2-** To apply the knowldge of Qulaity management guidelines in real scenario**(BL3-Apply)**							
Coures Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professsonal Ethics ✓ Gender ✕ Human Values ✓ Environment ✕		**SDG (Goals)**	SDG3(Good health and well-being) SDG4(Quality education) SDG12(Responsible consuption and production) SDG16(Peace Justice and strong institutions)				

Part B

Modules	Contents	Pedagogy	Hours
UNIT 1	Overview on Product Life cycle Management , Good Manufacturing Practices and its Regulations , Functions of pharmaceutical and healthcare industries (Quality, Production, RA, R&	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	10
UNIT 2	Good Documentation Practices, Data Integrity Assurance, Qualification and Validation, Change Control, Deviation Management, Out of specifications, Data Integrity Assurance	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	10
UNIT 3	CAPA & QRM, Complaint Handling & Product Recall, GMP requirements in Medical Devices, GMP Requirements in Pharmaceutical Drug substances and products, GMP for Biologics products and guidelines for injectable products	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	10

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
50	25	35	18	15	8
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**

Part E

Books	https://iris.who.int/bitstream/handle/10665/64465/WHO_VSQ_97.01-eng.pdf?sequence=1&isAllowed=y
Articles	https://www.fda.gov/drugs/pharmaceutical-quality-resources/current-good-manufacturing-practice-cgmp-regulations, CDER-OPQ-Inquiries@fda.hhs.gov
References Books	https://iris.who.int/bitstream/handle/10665/64465/WHO_VSQ_97.01-eng.pdf?sequence=1&isAllowed=y
MOOC Courses	https://www.itsligo.ie/courses/higher-certificate-in-science-in-good-manufacturing-practice-gmp/
Videos	https://www.youtube.com/watch?v=mFwA2KTiPwIhttps://www.youtube.com/watch?v=mFwA2KTiPwI

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	1	1	1	-	-	-	-	-	3	1	1	1	1
CO2	2	1	1	1	1	-	-	-	-	-	2	1	1	1	1
CO3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Syllabus-2023-2024

BPharm

Title of the Course	Introduction to intellectual property rights
Course Code	BP513ET

Part A

Year	3rd	**Semester**	5th	**Credits**	L	T	P	C
					3	1	0	4
Course Type	Theory only							
Course Category	Skill Enhancement Courses							
Pre-Requisite/s				**Co-Requisite/s**				
Course Outcomes & Bloom's Level	**CO1-** To create awareness of IPR among pharmacy students.**(BL2-Understand)** **CO2-** To make the pharmacy students aware about the pharmaceutical R & D and the activities therein.**(BL2-Understand)** **CO3-** Develop the understanding of the Intellectual Property Rights necessary for research activities in the pharmaceutical industry.**(BL3-Apply)** **CO4-** To know the database of intellectual property and TKDL**(BL2-Understand)** **CO5-** To apply the Knowledge of IPR in drafting and fillng of IPR**(BL3-Apply)**							
Coures Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professsonal Ethics ✓ Gender ✕ Human Values ✓ Environment ✕		**SDG (Goals)**	SDG1(No poverty) SDG3(Good health and well-being) SDG4(Quality education) SDG6(Clean water and sanitation) SDG8(Decent work and economic growth) SDG17(Partnerships for the goals)				

Part B

Modules	Contents	Pedagogy	Hours
UNIT 1	The pharmaceutical business and The pharmaceutical R & D	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	10
UNIT 2	Module 3 – Intellectual Property Rights: Introduction about patents, copyright, trademark, Industrial Designs,Geographical Indications, Trade Secrets, Module 4 – IPR: With specific reference to pharma	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	10
UNIT 3	IPR: Indian patent scenario and Patent commercialization and licensing	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	10
UNIT 4	Patent drafting and Patent searches, patent filing, registration, granting World Intellectual Property Organization (WIPO) and its functions	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	08
UNIT 5	IP in Traditional Knowledge, TKDL database in medicinal plants, INDIAN WEB-PORTALS FOR PATENTS AND TECHNOLOGIES	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	07

Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
1	patent drafting and filing	Case Study	BL3-Apply	5

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	50	75	38	25	13
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**

Part E

Books	Cockburn IM. Intellectual property rights and pharmaceuticals: challenges and opportunities for economic research. The economics of intellectual property. 2009 Jan:150.
Articles	Savale SK, Savale VK. Intellectual property rights (IPR). World J Pharm Pharm Sci. 2016 Apr 22;5:2559-92.
References Books	Prabu SL, Tnk S, editors. Intellectual property rights. BoD–Books on Demand; 2017 Jun 21.
MOOC Courses	NEPTEL
Videos	NA

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	2	-	1	-	-	-	3	-	2	3	-	1	1	1
CO2	-	1	-	-	-	-	-	3	-	-	2	-	1	-	1
CO3	-	1	-	-	-	-	-	2	-	-	-	-	-	-	-
CO4	-	-	-	-	-	-	-	2	-	-	2	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Syllabus-2023-2024

BPharm

Title of the Course	Good Manufacturing in Pharma
Course Code	BP612ET

Part A

Year	3rd	**Semester**	6th	**Credits**	L	T	P	C
					1	0	0	1
Course Type	Theory only							
Course Category	Discipline Specific Elective							
Pre-Requisite/s				**Co-Requisite/s**				
Course Outcomes & Bloom's Level	**CO1-** To be able to understand the basics of Good Manufacturing Practice for medicinal products for human use and the current legal regulations and guidelines**(BL1-Remember)** **CO2-** To have the confidence to outline the main GMP requirements related to premises, storage facilities and personnel;**(BL2-Understand)** **CO3-** To get familiar with the principles of the GMP quality system and quality control and the important procedures when dealing with complaints and recalls**(BL3-Apply)**							
Coures Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professsonal Ethics ✓ Gender ✕ Human Values ✓ Environment ✕		**SDG (Goals)**	SDG4(Quality education) SDG12(Responsible consuption and production)				

Part B

Modules	Contents	Pedagogy	Hours
UNIT 1	Introduction What is Good Manufacturing Practice? Why is GMP important? Official GMP Directives. the basic requirements of Good Manufacturing Practice., Pharmaceutical Quality System Principle and overview of the Pharmaceutical Quality System. Major updates. Development, content and implementation of PQS.	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	8
UNIT 2	Personnel Key personnel. Background and duties of the Qualified person. Duties of the Head of production department. Duties of the Head of quality control. Person releasing the batch. Consultants. Personnel training and hygiene, Premises and Equipment Production area. Storage area. Quality control areas. Ancillary areas. Equipment.	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	8
UNIT 3	Documentation Premises. Generation and control of documentation. Types of documents and specifications. Manufacturing formula and processing instructions. Packaging instructions. Procedures and records., Production General principles. Prevention of cross-contamination in production. Guidelines for starting materials. Processing operations. Packaging materials and operations. Guidelines for finished products.	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	8
UNIT 4	Quality Control General principles. Main tasks of the Quality control department. Technical transfer of testing methods. Transfer protocol., Complaints and Recalls GMP Guidelines related to complaints. Classification of defects. Product Recalls.	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	8

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	50	75	38	25	13
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**

Part E

Books	Karmacharya JB. Good manufacturing practices (GMP) for medicinal products. Promising Pharmaceuticals. 2014;101.
Articles	Patel KT, Chotai NP. Pharmaceutical GMP: past, present, and future–a review. Die Pharmazie-An International Journal of Pharmaceutical Sciences. 2008 Apr 1;63(4):251-5.
References Books	Durivage MA, editor. The Certified Pharmaceutical GMP Professional Handbook. Quality Press; 2016 May 23.
MOOC Courses	UDEMY, COURSERA, PHARMASTATE ACADEMY
Videos	You tube

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	-	-	1	2	-	2	2	1	-	3	-	1	1	1
CO2	2	2	-	1	3	-	2	1	1	-	2	-	1	1	1
CO3	1	1	-	1	1	-	1	1	1	-	1	-	1	1	1
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Syllabus-2023-2024

BPharm

Title of the Course	Pharmacy Practice
Course Code	BP703T

Part A

Year	4th	**Semester**	7th	**Credits**	L	T	P	C
					3	1	0	4
Course Type	Theory only							
Course Category	Discipline Core							
Pre-Requisite/s				**Co-Requisite/s**				
Course Outcomes & Bloom's Level	**CO1-** To acquire the knowledge on organization of hospitals, various methods of distribution and hospital formulary in hospitals and apply it in the practice of pharmacy.**(BL1-Remember)** **CO2-** To outline the organization and structure of community pharmacy and to build ability to design and run own community pharmacy.**(BL1-Remember)** **CO3-** To demonstrate the knowledge of therapeutic drug monitoring, patient medication history interview and to apply the knowledge on assessment of drug related problems.**(BL2-Understand)** **CO4-** categorize and evaluate the role of hospital pharmacist in pharmacy and therapeutic committee, drug information services, patient counseling, education and training programmes in hospitals.**(BL1-Remember)** **CO5-** To interpret clinical laboratory tests of specific disease states to provide better patient centered service.**(BL4-Analyze)**							
Coures Elements	Skill Development ✕ Entrepreneurship ✓ Employability ✓ Professsonal Ethics ✓ Gender ✓ Human Values ✓ Environment ✕		**SDG (Goals)**	SDG1(No poverty) SDG2(Zero hunger) SDG3(Good health and well-being) SDG4(Quality education) SDG5(Gender equality) SDG6(Clean water and sanitation)				

Part B

Modules	Contents	Pedagogy	Hours
UNIT 1	a) Hospital and it's organization Definition, Classification of hospital- Primary, Secondary and Tertiary hospitals, Classification based on clinical and non- clinical basis, Organization Structure of a Hospital, and Medical staffs involved in the hospital and their functions. b) Hospital pharmacy and its organization Definition, functions of hospital pharmacy, Organization structure, Location, Layout and staff requirements, and Responsibilities and functions of hospital pharmacists. c) Adverse drug reaction Classifications - Excessive pharmacological effects, secondary pharmacological effects, idiosyncrasy, allergic drug reactions, genetically determined toxicity, toxicity following sudden withdrawal of drugs, Drug interaction- beneficial interactions, adverse interactions, and pharmacokinetic drug interactions, Methods for detecting drug interactions, spontaneous case reports and record linkage studies, and Adverse drug reaction reporting and management. d) Community Pharmacy Organization and structure of retail and wholesale drug store, types and design, Legal requirements for establishment and maintenance of a drug store, Dispensing of proprietary products, maintenance of records of retail and wholesale drug store.	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	10
UNIT 2	a) Drug distribution system in a hospital Dispensing of drugs to inpatients, types of drug distribution systems, charging policy and labelling, Dispensing of drugs to ambulatory patients, and Dispensing of controlled drugs. b) Hospital formulary Definition, contents of hospital formulary, Differentiation of hospital formulary and Drug list, preparation and revision, and addition and deletion of drug from hospital formulary. c) Therapeutic drug monitoring Need for Therapeutic Drug Monitoring, Factors to be considered during the Therapeutic Drug Monitoring, and Indian scenario for Therapeutic Drug Monitoring. d) Medication adherence Causes of medication non-adherence, pharmacist role in the medication adherence, and monitoring of patient medication adherence. e) Patient medication history interview Need for the patient medication history interview, medication interview forms. f) Community pharmacy management Financial, materials, staff, and infrastructure requirements.	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	10
UNIT 3	a) Pharmacy and therapeutic committee Organization, functions, Policies of the pharmacy and therapeutic committee in including drugs into formulary, inpatient and outpatient prescription, automatic stop order, and emergency drug list preparation. b) Drug information services Drug and Poison information center, Sources of drug information, Computerized services, and storage and retrieval of information. Patient counseling Definition of patient counseling; steps involved in patient counseling, and Special cases that require the pharmacist c) Education and training program in the hospital Role of pharmacist in the education and training program, Internal and external training program, Services to the nursing homes/clinics, Code of ethics for community pharmacy, and Role of pharmacist in the interdepartmental communication and community health education. d) Prescribed medication order and communication skills Prescribed medication order- interpretation and legal requirements, and Communication skills- communication with prescribers and patients.	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	10
UNIT 4	preparation and implementation Budget preparation and implementation b) Clinical Pharmacy Introduction to Clinical Pharmacy, Concept of clinical pharmacy, functions and responsibilities of clinical pharmacist, Drug therapy monitoring - medication chart review, clinical review, pharmacist intervention, Ward round participation, Medication history and Pharmaceutical care. Dosing pattern and drug therapy based on Pharmacokinetic & disease pattern. c) Over the counter (OTC) sales Introduction and sale of over the counter, and Rational use of common over the counter medications.	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	08
UNIT 5	a) Drug store management and inventory control Organization of drug store, types of materials stocked and storage conditions, Purchase and inventory control: principles, purchase procedure, purchase order, procurement and stocking, Economic order quantity, Reorder quantity level, and Methods used for the analysis of the drug expenditure b) Investigational use of drugs Description, principles involved, classification, control, identification, role of hospital pharmacist, advisory committee.	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	07

Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
1	Visit of ITM Hospital	Internships	BL2-Understand	3
2	Visit of ITM Hospital	Field work	BL2-Understand	2

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	50	75	38	25	13
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**

Part E

Books	1.Merchant S.H. and Dr. J.S.Quadry. A textbook of hospital pharmacy, 4th ed. Ahmadabad: B.S. Shah Prakakshan; 2001. 2.Parthasarathi G, Karin Nyfort-Hansen, Milap C Nahata. A textbook of Clinical Pharmacy Practice- essential concepts and skills, 1st ed. Chennai: Orient Longman Private Limited; 2004.
Articles	6. Therapeutic drug monitoring. ISSN: 0163-4356 7. Journal of pharmacy practice. ISSN: 0974-8326 8. American journal of health system pharmacy. ISSN: 1535-2900 (online) 9.Pharmacy times (Monthly magazine)
References Books	3. Tipnis Bajaj. Hospital Pharmacy, 1st ed. Maharashtra: Career Publications; 2008. 4. Scott LT. Basic skills in interpreting laboratory data, 4thed. American Society of Health System Pharmacists Inc; 2009. 5. Parmar N.S. Health Education and Community Pharmacy, 18th ed. India: CBS Publishers & Distributers; 2008.
MOOC Courses	https://nptel.ac.in/, https://www.udemy.com/
Videos	You tube

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	1	-	-	-	2	-	-	-	-	3	-	1	2	1
CO2	3	1	-	1	-	2	-	-	-	-	3	-	1	1	1
CO3	2	2	-	-	-	1	-	-	-	-	3	-	1	1	1
CO4	3	1	-	1	-	2	-	-	-	-	2	-	1	1	1
CO5	2	1	-	1	-	1	1	-	-	-	2	-	1	2	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Syllabus-2023-2024

BPharm

Title of the Course	Practice School *
Course Code	BP706PS

Part A

Year	4th	**Semester**	7th	**Credits**	L	T	P	C
					0	0	6	6
Course Type	Project							
Course Category	Discipline Core							
Pre-Requisite/s	In the VII semester, every candidate shall undergo practice school for a period of 150 hours evenly distributed throughout the semester. The student shall opt for any one of the domains for practice school declared by the program committee from time to time.			**Co-Requisite/s**	every student shall submit a printed report (in triplicate) on the practice school he/she attended (not more than 25 pages). Along with the exams of semester VII, the report submitted by the student, knowledge and skills acquired by the student through practice school shall be evaluated by the subject experts at the college level and grade points shall be awarded.			
Course Outcomes & Bloom's Level	**CO1-** To understand the importance of realistic learning through practice in various domains such as community pharmacy, drug testing and manufacturing, preclinical testing, clinical practice, patent filing, regulatory filing accounting, green audit and article writing.**(BL2-Understand)** **CO2-** To get familiarize with the aspects of realistic practice in the domain of interest.**(BL3-Apply)** **CO3-** To develop knowledge and skills related to practical learning in the domain of interest.**(BL1-Remember)** **CO4-** To analyze the problems encountered during realistic practice and make use of theoretical knowledge to resolve those problems.**()** **CO5-** To build up the ability to perform well in the domain of interest after becoming an employee/entrepreneur.**(BL6-Create)**							
Coures Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professsonal Ethics ✕ Gender ✓ Human Values ✓ Environment ✕		**SDG (Goals)**	SDG1(No poverty) SDG3(Good health and well-being) SDG4(Quality education) SDG6(Clean water and sanitation) SDG8(Decent work and economic growth) SDG17(Partnerships for the goals)				

Part B

Modules	Contents	Pedagogy	Hours
1	Practice school	Practice School involves task orientation, teamwork, goal orientation and managing the interpersonal relationships. Therefore, it helps students to develop the qualities required by a graduate. A good Practice School program undertaken with all the seriousness provides an excellent learning opportunity to the student and also paves the way for successful career path.	150

Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
1	Practice School	Field work		5

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
	0	0			
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
150	75	100	50	50	25

Part E

Books	Please refer Library and Internet
Articles	Refer to the Library and Internet
References Books	Please refer Library and Internet
MOOC Courses	NA
Videos	Refer Library and Internet, NPTEL, YOU TUBE

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	-	2	1	1	1	2	2	-	-	3	-	2	1	1
CO2	2	-	1	1	-	-	-	-	-	-	2	-	1	1	1
CO3	1	-	1	-	1	-	-	-	-	-	2	-	-	1	1
CO4	1	1	1	1	1	-	-	-	-	-	3	-	-	1	1
CO5	3	-	1	1	-	-	-	-	1	-	2	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Syllabus-2023-2024

BPharm

Title of the Course	Social and Preventive Pharmacy
Course Code	BP802T

Part A

Year	4th	**Semester**	8th	**Credits**	L	T	P	C
					3	1	0	4
Course Type	Theory only							
Course Category	Discipline Core							
Pre-Requisite/s				**Co-Requisite/s**				
Course Outcomes & Bloom's Level	**CO1-** To understand the concept of health and health education.**(BL2-Understand)** **CO2-** To create awareness about various preventive measures of stated communicable and non-communicable diseases.**(BL2-Understand)** **CO3-** To apply the knowledge of national health programmes mentioned in real world to serve the society.**(BL2-Understand)** **CO4-** To evaluate the health and pharmacy related problems in societal perspective.**(BL5-Evaluate)** **CO5-** To demonstrate the impact of socio-cultural factors and urbanization on health.**(BL3-Apply)**							
Coures Elements	Skill Development ✕ Entrepreneurship ✕ Employability ✓ Professsonal Ethics ✓ Gender ✓ Human Values ✓ Environment ✕		**SDG (Goals)**	SDG1(No poverty) SDG2(Zero hunger) SDG3(Good health and well-being) SDG4(Quality education) SDG5(Gender equality) SDG10(Reduced inequalities) SDG12(Responsible consuption and production) SDG15(Life on land) SDG17(Partnerships for the goals)				

Part B

Modules	Contents	Pedagogy	Hours
UNIT 1	Concept of health and disease: Definition, concepts and evaluation of public health. Understanding the concept of prevention and control of disease, social causes of diseases and social problems of the sick. Social and health education: Food in relation to nutrition and health, Balanced diet, Nutritional deficiencies, Vitamin deficiencies, Malnutrition and its prevention. Sociology and health: Socio cultural factors related to health and disease, Impact of urbanization on health and disease, Poverty and health Hygiene and health: personal hygiene and health care; avoidable habits	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	10
UNIT 2	Preventive medicine: General principles of prevention and control of diseases such as cholera, SARS, Ebola virus, influenza, acute respiratory infections, malaria, chicken guinea, dengue, lymphatic filariasis, pneumonia, hypertension, diabetes mellitus, cancer, drug addiction-drug substance abuse	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	10
UNIT 3	National health programs, its objectives, functioning and outcome of the following: HIV AND AIDS control programme, TB, Integrated disease surveillance program (IDSP), National leprosy control programme, National mental health program, National programme for prevention and control of deafness, Universal immunization programme, National programme for control of blindness, Pulse polio programme.	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	10
UNIT 4	National health intervention programme for mother and child, National family welfare programme, National tobacco control programme, National Malaria Prevention Program, National programme for the health care for the elderly, Social health programme; role of WHO in Indian national program	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	08
UNIT 5	Community services in rural, urban and school health: Functions of PHC, Improvement in rural sanitation, national urban health mission, Health promotion and education in school.	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	07

Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
1	Nukkad Natak Program on Awareness of woman hygiene	Field work	BL3-Apply	4

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	50	75	38	25	13
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**

Part E

Books	1. Short Textbook of Preventive and Social Medicine, Prabhakara GN, 2nd Edition, 2010, ISBN: 9789380704104, JAYPEE Publications 2. Textbook of Preventive and Social Medicine (Mahajan and Gupta), Edited by Roy Rabindra Nath, Saha Indranil, 4th Edition, 2013, ISBN: 9789350901878, JAYPEE Publications
Articles	Research in Social and Administrative Pharmacy, Elsevier, Ireland
References Books	1. Essentials of Community Medicine—A Practical Approach, Hiremath Lalita D, Hiremath Dhananjaya A, 2nd Edition, 2012, ISBN: 9789350250440, JAYPEE Publications 2. Park Textbook of Preventive and Social Medicine, K Park, 21st Edition, 2011, ISBN-14: 9788190128285, BANARSIDAS BHANOT PUBLISHERS. 3. Community Pharmacy Practice, Ramesh Adepu, BSP publishers, Hyderabad
MOOC Courses	https://nptel.ac.in/
Videos	https://www.youtube.com/watch?v=pF8zYdLAeKM

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	-	-	-	-	3	3	3	1	-	1	-	1	3	1
CO2	2	-	-	-	-	3	3	3	1	-	1	-	1	2	1
CO3	3	-	-	-	-	3	2	3	1	-	1	-	1	3	1
CO4	2	1	-	-	-	3	2	2	-	-	2	-	1	2	1
CO5	2	-	-	1	-	3	2	1	-	-	-	-	1	2	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Syllabus-2023-2024

BPharm

Title of the Course	Pharmaceutical Regulatory Science
Course Code	BP804ET

Part A

Year	4th	**Semester**	8th	**Credits**	L	T	P	C
					3	1	0	4
Course Type	Theory only							
Course Category	Discipline Electives							
Pre-Requisite/s				**Co-Requisite/s**				
Course Outcomes & Bloom's Level	**CO1-** To recall the concepts of Drug discovery, development process, clinical studies and generic drug product development.**(BL1-Remember)** **CO2-** To perceive the regulatory approval process and timelines for IND, NDA and ANDA and to know about changes to an approved NDA/ANDA.**(BL2-Understand)** **CO3-** To familiar with Regulatory authorities and agencies like India, USA, Europe, Australia, Japan and Canada.**(BL2-Understand)** **CO4-** To know the regulatory registration process of Indian drugs in overseas market which include to understand about technical documents like DMF, CTD, eCTD and ACTD. **(BL2-Understand)** **CO5-** To assimilate the process of clinical trials and pharmacovigilance as well as to understand obligations of GCP in clinical trials.**(BL2-Understand)**							
Coures Elements	Skill Development ✕ Entrepreneurship ✕ Employability ✓ Professsonal Ethics ✓ Gender ✕ Human Values ✓ Environment ✕		**SDG (Goals)**	SDG1(No poverty) SDG3(Good health and well-being) SDG4(Quality education) SDG8(Decent work and economic growth) SDG10(Reduced inequalities) SDG17(Partnerships for the goals)				

Part B

Modules	Contents	Pedagogy	Hours
UNIT 1	New Drug Discovery and development Stages of drug discovery, Drug development process, pre-clinical studies, non-clinical activities, clinical studies, Innovator and generics, Concept of generics, Generic drug product development.	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	10
UNIT 2	Regulatory Approval Process Approval processes and timelines involved in Investigational New Drug (IND), New Drug Application (NDA), Abbreviated New Drug Application (ANDA). Changes to an approved NDA / ANDA. Regulatory authorities and agencies Overview of regulatory authorities of India, United States, European Union, Australia, Japan, and Canada (Organization structure and types of applications)	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	10
UNIT 3	Registration of Indian drug product in overseas market Procedure for export of pharmaceutical products, Technical documentation, Drug Master Files (DMF), Common Technical Document (CTD), electronic Common Technical Document (eCTD), ASEAN Common Technical Document (ACTD)research.	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	10
UNIT 4	Clinical trials Developing clinical trial protocols, Institutional Review Board / Independent Ethics committee - formation and working procedures, Informed consent process and procedures, GCP obligations of Investigators, sponsors & Monitors, Managing and Monitoring clinical trials, Pharmacovigilance - safety monitoring in clinical trials	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	08
UNIT 5	Regulatory Concepts Basic terminology, guidance, guidelines, regulations, Laws and Acts, Orange book, Federal Register, Code of Federal Regulatory, Purple book	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	07

Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
1	DMF Preparation and its submission, review of DMF of any given company	PBL	BL3-Apply	5

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	50	75	38	25	13
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**

Part E

Books	1. Drug Regulatory Affairs by Sachin Itkar, Dr. N.S. Vyawahare, Nirali Prakashan. 2. The Pharmaceutical Regulatory Process, Second Edition Edited by Ira R. Berry and Robert P. Martin, Drugs and the Pharmaceutical Sciences, Vol.185. Informa Health care Publishers. 3. New Drug Approval Process: Accelerating Global Registrations By Richard A Guarino, MD, 5th edition, Drugs and the Pharmaceutical Sciences, Vol.190. 4. Guidebook for drug regulatory submissions / Sandy Weinberg. By John Wiley & Sons. Inc.
Articles	https://medwinpublishers.com/PDRAJ/
References Books	5. FDA Regulatory Affairs: a guide for prescription drugs, medical devices, and biologics /edited by Douglas J. Pisano, David Mantus. 6. Generic Drug Product Development, Solid Oral Dosage forms, Leon Shargel and Isader Kaufer, Marcel Dekker series, Vol.143 7. Clinical Trials and Human Research: A Practical Guide to Regulatory Compliance By Fay A. Rozovsky and Rodney K. Adams 8. Principles and Practices of Clinical Research, Second Edition Edited by John I. Gallin and Frederick P. Ognibene 9. Drugs: From Discovery to Approval, Second Edition By Rick Ng
MOOC Courses	https://nptel.ac.in/
Videos	You tube and Carewell pharma

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3	-	-	-	3	2	1	-	1	2	-	2	2	1
CO2	3	2	-	1	-	2	2	1	-	-	1	-	2	1	1
CO3	2	3	1	-	-	1	2	1	-	-	2	-	2	2	2
CO4	3	3	-	1	-	3	2	1	-	1	2	-	2	2	1
CO5	3	3	1	1	-	3	2	1	-	-	2	-	-	2	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Syllabus-2023-2024

BPharm

Title of the Course	Dietary Supplements and Nutraceuticals
Course Code	BP812ET

Part A

Year	4th	**Semester**	8th	**Credits**	L	T	P	C
					3	1	0	4
Course Type	Theory only							
Course Category	Discipline Electives							
Pre-Requisite/s				**Co-Requisite/s**				
Course Outcomes & Bloom's Level	**CO1-** To define, classify and understand the functional foods, Nutraceuticals and dietary supplements.**(BL1-Remember)** **CO2-** To remember the sources, chemical nature, medicinal uses and health benefits of Nutraceuticals and functional foods.**(BL1-Remember)** **CO3-** To interpret the applications of phytochemicals as Nutraceuticals. flavonoids, probiotics, Tocopherols, proteins, minerals etc.**(BL2-Understand)** **CO4-** To discuss the regulatory aspects, adulteration of dietary fibres and Nutraceuticals and their pharmacopoeial specifications.**(BL2-Understand)** **CO5-** To analyse the role of dietary fibres and complex carbohydrates as functional food ingredients**(BL4-Analyze)**							
Coures Elements	Skill Development ✕ Entrepreneurship ✕ Employability ✓ Professsonal Ethics ✕ Gender ✕ Human Values ✓ Environment ✕		**SDG (Goals)**	SDG1(No poverty) SDG2(Zero hunger) SDG3(Good health and well-being) SDG4(Quality education) SDG12(Responsible consuption and production)				

Part B

Modules	Contents	Pedagogy	Hours
UNIT 1	a. Definitions of Functional foods, Nutraceuticals and Dietary supplements. Classification of Nutraceuticals, Health problems and diseases that can be prevented or cured by Nutraceuticals i.e. weight control, diabetes, cancer, heart disease, stress, osteoarthritis, hypertension etc. b. Public health nutrition, maternal and child nutrition, nutrition and ageing, nutrition education in community. c. Source, Name of marker compounds and their chemical nature, Medicinal uses and health benefits of following used as nutraceuticals/functional foods: Spirulina, Soybean, Ginseng, Garlic, Broccoli, Gingko, Flaxseeds	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	07
UNIT 2	Phytochemicals as nutraceuticals: Occurrence and characteristic features (chemical nature medicinal benefits) of following a) Carotenoids- α and β-Carotene, Lycopene, Xanthophylls, leutin b) Sulfides: Diallyl sulfides, Allyl trisulfide. c) Polyphenolics: Reservetrol d) Flavonoids- Rutin, Naringin, Quercitin, Anthocyanidins, catechins, Flavones e) Prebiotics / Probiotics.: Fructo oligosaccharides, Lacto bacillum f) Phyto estrogens: Isoflavones, daidzein, Geebustin, lignans g) Tocopherols h) Proteins, vitamins, minerals, cereal, vegetables and beverages as functional foods: oats, wheat bran, rice bran, sea foods, coffee, tea and the like	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	15
UNIT 3	a) Introduction to free radicals: Free radicals, reactive oxygen species, production of free radicals in cells, damaging reactions of free radicals on lipids, proteins, Carbohydrates, nucleic acids. b) Dietary fibres and complex carbohydrates as functional food ingredients	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	07
UNIT 4	a) Free radicals in Diabetes mellitus, Inflammation, Ischemic reperfusion injury, Cancer, Atherosclerosis, Free radicals in brain metabolism and pathology, kidney damage, muscle damage. Free radicals involvement in other disorders. Free radicals theory of ageing. b) Antioxidants: Endogenous antioxidants – enzymatic and nonenzymatic antioxidant defence, Superoxide dismutase, catalase, Glutathione peroxidase, Glutathione Vitamin C, Vitamin E, α- Lipoic acid, melatonin Synthetic antioxidants: Butylated hydroxy Toluene, Butylated hydroxy Anisole. c) Functional foods for chronic disease prevention	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	10
UNIT 5	a) Effect of processing, storage and interactions of various environmental factors on the potential of nutraceuticals. b) Regulatory Aspects; FSSAI, FDA, FPO, MPO, AGMARK. HACCP and GMPs on Food Safety. Adulteration of foods. c) Pharmacopoeial Specifications for dietary supplements and nutraceutical	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	06

Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
1	making of report on the ingredients under the project of Know Your Packed Food	Field work	BL4-Analyze	2

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	50	75	38	25	13
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**

Part E

Books	1. Dietetics by Sri Lakshmi 2. Role of dietary fibres and neutraceuticals in preventing diseases by K. T Agusti and P.Faizal: BSPunblication. 3. Advanced Nutritional Therapies by Cooper. K.A., (1996). 4. The Food Pharmacy by Jean Carper, Simon & Schuster, UK Ltd., (1988). 5. Prescription for Nutritional Healing by James F.Balch and Phyllis A.Balch 2nd Edn., Avery Publishing Group, NY (1997). 6. G. Gibson and C.williams Editors 2000 Functional foods Woodhead Publ.Co.London. 7. Goldberg, I. Functional Foods. 1994. Chapman and Hall, New York.
Articles	https://www.ffhdj.com/index.php/DietarySupplementsNutraceuticals
References Books	8. Labuza, T.P. 2000 Functional Foods and Dietary Supplements: Safety, Good Manufacturing Practice (GMPs) and Shelf-Life Testing in Essentials of Functional Foods M.K. Sachmidl and T.P. Labuza eds. Aspen Press. 9. Handbook of Nutraceuticals and Functional Foods, Third Edition (Modern Nutrition) 10. Shils, ME, Olson, JA, Shike, M. 1994 Modern Nutrition in Health and Disease. Eighth edition. Lea and Febiger
MOOC Courses	Arogyam.com
Videos	https://www.youtube.com/watch?v=TLSPWcJncso

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	-	1	-	1	1	-	-	-	-	2	-	1	1	1
CO2	3	-	1	-	-	1	-	-	-	-	1	-	1	2	1
CO3	2	-	1	-	1	1	-	-	-	-	2	-	1	1	-
CO4	2	-	1	-	1	1	-	-	-	-	1	-	1	1	1
CO5	2	-	1	-	1	1	-	-	-	-	2	-	1	1	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Syllabus-2023-2024

MPharm-PharmaCeutics

Title of the Course	Introduction to intellectual property rights
Course Code	MPH 208ET

Part A

Year	1st	**Semester**	2nd	**Credits**	L	T	P	C
					3	1	0	4
Course Type	Theory only							
Course Category	Skill Enhancement Courses							
Pre-Requisite/s				**Co-Requisite/s**				
Course Outcomes & Bloom's Level	**CO1-** To create awareness of IPR among pharmacy students.**(BL2-Understand)** **CO2-** To make the pharmacy students aware about the pharmaceutical R & D and the activities therein.**(BL2-Understand)** **CO3-** Develop the understanding of the Intellectual Property Rights necessary for research activities in the pharmaceutical industry.**(BL3-Apply)** **CO4-** To know the database of intellectual property and TKDL**(BL2-Understand)** **CO5-** To apply the Knowledge of IPR in drafting and fillng of IPR**(BL3-Apply)**							
Coures Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professsonal Ethics ✓ Gender ✕ Human Values ✓ Environment ✕		**SDG (Goals)**	SDG1(No poverty) SDG3(Good health and well-being) SDG4(Quality education) SDG6(Clean water and sanitation) SDG8(Decent work and economic growth) SDG17(Partnerships for the goals)				

Part B

Modules	Contents	Pedagogy	Hours
UNIT 1	The pharmaceutical business and The pharmaceutical R & D	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	10
UNIT 2	Module 3 – Intellectual Property Rights: Introduction about patents, copyright, trademark, Industrial Designs,Geographical Indications, Trade Secrets, Module 4 – IPR: With specific reference to pharma	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	10
UNIT 3	IPR: Indian patent scenario and Patent commercialization and licensing	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	10
UNIT 4	Patent drafting and Patent searches, patent filing, registration, granting World Intellectual Property Organization (WIPO) and its functions	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	08
UNIT 5	IP in Traditional Knowledge, TKDL database in medicinal plants, INDIAN WEB-PORTALS FOR PATENTS AND TECHNOLOGIES	Lecture based learning, interactive class, Peer tutorial, Class using ICT tool/PPT/white board	07

Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
1	patent drafting and filing	Case Study	BL3-Apply	5

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	50	75	38	25	13
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**

Part E

Books	Cockburn IM. Intellectual property rights and pharmaceuticals: challenges and opportunities for economic research. The economics of intellectual property. 2009 Jan:150.
Articles	Savale SK, Savale VK. Intellectual property rights (IPR). World J Pharm Pharm Sci. 2016 Apr 22;5:2559-92.
References Books	Prabu SL, Tnk S, editors. Intellectual property rights. BoD–Books on Demand; 2017 Jun 21.
MOOC Courses	NEPTEL
Videos	NA

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	2	-	1	-	-	-	3	-	2	3	-	1	1	1
CO2	-	1	-	-	-	-	-	3	-	-	2	-	1	-	1
CO3	-	1	-	-	-	-	-	2	-	-	-	-	-	-	-
CO4	-	-	-	-	-	-	-	2	-	-	2	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Syllabus-2023-2024

MPharm-PharmaCeutics

Title of the Course	Research Work
Course Code	MPH 304P

Part A

Year	2nd	**Semester**	3rd	**Credits**	L	T	P	C
					0	0	14	14
Course Type	Lab only							
Course Category	Projects and Internship							
Pre-Requisite/s				**Co-Requisite/s**				
Course Outcomes & Bloom's Level	**CO1-** To know how to conduct a research**(BL2-Understand)** **CO2-** To know about different research methodolgies**(BL2-Understand)** **CO3-** Apllication of research principles and stastical principles**(BL3-Apply)**							
Coures Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professsonal Ethics ✓ Gender ✕ Human Values ✓ Environment ✕		**SDG (Goals)**	SDG4(Quality education)				

Part B

Modules	Contents	Pedagogy	Hours
UNIT-I			

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
	175				
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
350	175	200	100	150	75

Part E

Books	NA
Articles	NA
References Books	NA
MOOC Courses	NA
Videos	NA

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	3	2	2	-	-	-	-	3	-	1	3	3
CO2	3	2	3	2	2	1	-	-	-	-	3	-	2	1	3
CO3	3	3	3	2	2	1	-	-	-	-	3	-	3	1	3
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-