



S M V E C
PHARMACY COLLEGE
(Approved by Pharmacy Council of India and Government of Puducherry)
(Affiliated to Pondicherry University)
Madagadipet, Puducherry - 605 107



MINUTES OF 3rd MEETING OF BOARD OF STUDIES (UG)

Venue: Board Room-II, Admin Block

Date: 30/08/2024

2024-25



SMVEC PHARMACY COLLEGE

Minutes of 3rd Meeting of Board of Studies (UG)

The Third meeting of Board of Studies (BoS) in Pharmacy Department was held on 30th Aug 2024 at 11.30 AM in the Board Room - II in SMVEC Pharmacy College with Head of Department in the Chair.

The following members were present for the BoS meeting

Sl. No.	Name of the Member	Designation
Head of the Department (Chairperson)		
1	Dr. M. Dhanalakshmi, Dean, Department of Pharmacy, Specialization: Pharmaceutical Quality Assurance Years of Experience: 17 years 3 months SMVEC Pharmacy College dhanadlxb@gmail.com Mobile: 9550169191	Chairperson
One expert nominated by the Vice-Chancellor, Pondicherry University from a panel of six recommended by the college principal.		
2	Dr. Nisha Mathew, Director Grade Scientist (Retd.), ICMR-Vector Control Research Centre, Indira Nagar, Gorimedu, Puducherry-605006. nisha.mathew@icmr.gov.in / nishamathew@yahoo.com Mobile: 9444935790	Subject Expert
Two subject experts from outside the Parent University nominated by the Academic Council		
3	Dr. Kailasam Koumaravelou, Dean, Specialization: Pharmacology Years of Experience: 25 Prist School of Pharmacy, Manamainallur, Kancheepuram Dist. koumar@gmail.com Mobile: 9443309034	Subject Expert


Dr. M. Dhanalakshmi, M.Pharm. Ph.D
Dean
SMVEC Pharmacy College
Madagadipet,
Puducherry.

4	Dr. V. Vijayan Associate Dean Research Specialization: Pharmaceutics Years of Experience:16 Sri Balaji Vidyapeeth (Deemed to be University) Puducherry vijayanv@gmail.com Mobile: 9751391078	Subject Expert
One representative from industry/corporate sector/allied area relating to placement.		
5	Dr. E. Anandakirouchenane Controlling Authority cum Licensing Authority, Department of Drug Control, Puducherry. e.anandakirouchenana@py.gov.in Mobile: 9443957680	Member
Experts from outside the Autonomous College, whenever special course of studies is to be formulated.		
6	Dr. N. Kannappan Professor Department of Pharmacy, Annamalai University, Annamalai Nagar 608002 kannappanpharmacy@gmail.com Mobile: 7010924748	Subject Expert
7.	Mr. S. Mathivanan Assistant Professor, SMVEC Pharmacy College, Madagadipet, Puducherry – 605501 drxmathinanotech@gmail.com Mobile: 9344438146	Member
8.	Mrs. B. Durgambigai Assistant Professor, SMVEC Pharmacy College, Madagadipet, Puducherry – 605501 durgabalu81@gmail.com Mobile: 9444047453	Member
Special Invitees		
8.	Dr. Arivalagar . A.A Dean Academics Sri Manakula Vinayagar Engineering College, Madagadipet, Puducherry-605107 Mobile: 78100 75545	Dean Academics
9.	Dr. S. Anbumalar Dean Academics Sri Manakula Vinayagar Engineering College, Madagadipet, Puducherry-605107 Mobile:9443179533	Dean Academics


Dr. M. Dhanalakshmi, M.Pharm, Ph.D
Dean
SMVEC Pharmacy College
Madagadipet,
Puducherry.

Agenda of the Meeting	
Agenda 1/ BoS /3 /2024 /pharmacy/UG	To Confirm the minutes of 2 nd BoS Meeting held on 24/02/2024
Agenda 2/ BoS /3 /2024 /pharmacy/UG	To approve the syllabi of V Semester of B. Pharmacy Programme in SMVEC Pharmacy college.
Agenda 3/ BoS /3 /2024 /pharmacy/UG	To apprise the BoS about the Education Regulations – 2020 (ER-2020) given by Directorate of Medical Education (DME) to be followed for the proposed Diploma in Pharmacy Programme to be introduced from the Academic year 2024-2025 in SMVEC Pharmacy college.
Agenda 4/ BoS /3 /2024 /pharmacy/UG	To apprise the BoS about the curriculum and Syllabi for I year in the Proposed Diploma in Pharmacy Programme to be introduced from the Academic year 2024-2025 in SMVEC Pharmacy college
Agenda 5/ BoS /3 /2024 /pharmacy/UG	To recommend the panel of examiners for B. Pharm and Proposed D.Pharm Programme to the Academic Council.
Agenda 6/ BoS /3/2024/pharmacy/UG	Any other additional points to be discussed with the permission of Chair. a) Completion of Sessional Exam I&II for 2 nd Semester B.Pharmacy. b) Date of 2 nd Semester B. Pharmacy Evaluation and Pass board meeting updates.


Dr. M. Dhanalakshmi, M.Pharm, Ph.D
 Dean
 SMVEC Pharmacy College
 Madagadipet,
 Puducherry.

Dr. M. Dhanalakshmi, Chairperson, BoS opened the meeting by welcoming all the members and the meeting thereafter deliberated on agenda items that had been approved by the Members of BoS.

Agenda 1/BoS /3 /2024 /Pharmacy/UG

To Confirm the minutes of 2nd BoS Meeting held on 24/02/2024.

Suggestion Made	Action Taken
To add a course as a Mandatory Non-Credit Course in any one of the areas namely Value-added Course, Skill Development & Certification Course (VAC/SD/CC) during each Semester.	Following Courses are added I Sem - YOGA AND FIRST AID (40hrs) II Sem - CLIMATE CHANGE (40hrs) III Sem - DEEP LEARNING OF PYTHON (40hrs) IV Sem - BIOETHICS (40hrs) V Sem - GENDER EQUALITY (40hrs) VI Sem - GLP/GMP/RA (40hrs) VII Sem - ARTIFICIAL INTELLIGENCE AND 3-D MACHINING (40hrs) VAC/SD/CC courses are required to be completed to fulfill the Degree requirements. However, it will not be taken in to consideration for the SGPA/CGPA calculations. Each of these courses are assessed continuously and internally for a total of a mark of 100 by the course coordinator handling the course through assignments/MCQ Tests/CAM/Quiz. The students will be declared as "Pass" on satisfactory completion.
To conduct Academic Co-Curriculum Activities.	The Academic Co-Curriculum Activities were conducted and listed in Annexure I .

Agenda 2/BoS /3 /2024 /pharmacy/UG

To Apprise and Approve the Syllabi of V Semester of B. Pharmacy Programme in SMVEC Pharmacy college.

The BoS approved the Course Curriculum, Syllabi of Fifth Semesters for Bachelor of Pharmacy (B.


Dr. M. Dhanalakshmi, M.Pharm, Ph.D
Dean
SMVEC Pharmacy College
Madaqadipet,

Pharm) Programme under SMVEC Pharmacy College Autonomous Regulations R-2023 to be implemented from the academic year 2024-2025 as in **Annexure II**

Agenda 3/BoS /3 /2024 /pharmacy/UG

To apprise the BOS about the Education Regulations – 2020 (ER-2020) given by Directorate of Medical Education (DME) to be followed for the proposed Diploma in Pharmacy Programme which will be introduced from the Academic year 2024-2025 in SMVEC Pharmacy college.

Members of BoS has agreed to implement the Education Regulation – 2020 (ER-2020) for the Proposed D.Pharm Programme in SMVEC Pharmacy College from the Academic Year 2024-25 subject to the permission to be granted by Pharmacy Council of India (PCI). Regulations for Diploma in Pharmacy (D.Pharm) Programme are given in **Annexure III**.

Agenda 4/BoS /3 /2024/pharmacy/UG

To apprise the BoS about the Curriculum and Syllabi for Proposed Diploma in Pharmacy Programme to be introduced from the Academic year 2024-2025 in SMVEC Pharmacy college.

Members of BoS accepted and agreed the Curriculum and Syllabi as per Education Regulation – 2020 (ER-2020) for D.Pharm Programme in SMVEC Pharmacy College from the Academic Year 2024-25 to be started. Members of BoS have agreed to add Mandatory non-credit course in the Curriculum.

Agenda 5/BoS /3 /2024/pharmacy/UG

To recommend the panel of examiners for B. Pharm and Proposed D.Pharm Programme to the Academic Council.

Members of BoS confirmed the Panel of examiners for B. Pharm and Proposed D.Pharm Programme to the Academic Council. The List of Examiners are given in **Annexure IV**

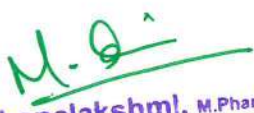
Agenda 6/BoS /3 /2024/pharmacy/UG

Any other additional points to be discussed with the permission of Chair.

- a) Completion of Sessional Exam I (20/05/2024 to 27/05/2024) & Sessional Exam II (01/07/2024 to 06/07/2024) for 2nd Semester is completed as per academic calendar. The corrected answer scripts were distributed and the signature of students was obtained on the corrected answer scripts as a token of confirmation.
- b) Date of 2nd Semester B.Pharmacy End Semester Evaluation done on 09/08/2024 and Pass board meeting was held on 22/08/2024. The results were released in the college website

on24/08/204

The Third BoS Meeting was concluded at 1.00 PM by proposing a Vote of Thanks by **Dr. M. Dhanalakshmi**, Chairperson, Board of Studies, SMVEC Pharmacy College.


Dr. M. Dhanalakshmi, M.Pharm, Ph.D
Dean
SMVEC Pharmacy College
Madagadipet,
Puducherry.



The third meeting of BOS approval was concluded at 1.00 PM by Dr.M.Dhanalakshmi, Chairperson, Board of Studies, Department of Pharmacy, Sri Manakula Vinayagar Engineering College.

Sl. No.	Name of the Member with Official Address	Designation	Signature
1	Dr. M. Dhanalakshmi, Dean, Department of Pharmacy, SMVEC Pharmacy College	Chairperson	M.D. 30/8/2024
2	Dr. Nisha Mathew, Director Grade Scientist (Retd.), ICMR-Vector Control Research Centre, Indira Nagar, Gorimedu, Puducherry-605006.	Subject Expert	Nisha
3	Dr. Kailasam Koumaravelou, Dean, Prist School of Pharmacy, Manamainallur, Kancheepuram Dist.	Subject Expert	K. K. 30/8/2024
4	Dr. V. Vijayan Associate Dean Research Sri Balaji Vidyapeeth (Deemed to be University) Puducherry	Subject Expert	V. V. 30/8/2024
5	Dr. E. Anandakirouchenane Controlling Authority cum Licensing Authority, Department of Drug Control, Puducherry.	Member	E. A. 30/8/2024
6	Dr. N. Kannappan Professor Department of Pharmacy, Annamalai University, Annamalai Nagar 608002	Subject Expert	N. K. 30/8/24
7.	Mr. S. Mathivanan Assistant Professor, SMVEC Pharmacy College, Madagadipet, Puducherry - 605501	Member	S. M. 30/8/24
8.	Mrs. B. Durgambikai Assistant Professor, SMVEC Pharmacy College, Madagadipet, Puducherry - 605107	Member	B. D. 30/8/24

Dean Academics
(Dr. A. A. Aivalagar)

Dean Academics
(Dr. S. Anbumalar)

Chairperson /BOS/Pharmacy
(Dr. M. Dhanalakshmi)

Director cum Principal
(Dr. V. S. K. Venkatachalapathy)

Dr. M. Dhanalakshmi, M.Pharm, Ph.D
Dean
SMVEC Pharmacy College
Madagadipet,
Puducherry.



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Conducting of 3rd BOS in SMVEC Pharmacy College -Reg

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Dean Pharmacy SMVEC <deanpharmacy@smvec.ac.in>

to Kannappan, nishamathew, Koumaravelou, e.anandakirouchenane, V.Vijayan

Mon, Aug 19, 3:39 PM

Respected madam/sir,

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Greetings. We propose to conduct **3rd meeting of Board of studies** in the Department of Pharmacy BOS on **August 30th (friday)**, 2024 in our SMVEC Pharmacy College. In this regard, we seek your kind permission to conduct **3rd meeting of Board of studies** in the Pharmacy Department in SMVEC Pharmacy college at Sri Manakula Vinayagar Engineering College (Autonomous), Puducherry and also through online Google/Zoom Meet. Kindly reply for acceptance through mail.


Dr. M. Dhanalakshmi, M.Pharm, Ph.D
Dean
SMVEC Pharmacy College
Madagadipet,

With Regards,
Dr. M. Dhanalakshmi
Dean
SMVEC- Pharmacy College
Puducherry

 koumaravelou

Mon, Aug 19, 3:45 PM

Conducting of 3rd BOS in SMVEC Pharmacy College -Reg

Dean Pharmacy SMVEC

Respected madam/sir, Greetings. We propose to conduct 3rd meeting of Board of studies in the Department of Pharmacy BOS on August 30th (friday), 2024 i...

Mon, Aug 19, 3:39 PM

Kannappan Nagappan

Dear Sir/Madam Noted the contents of the mail will attend the BOS meeting on 30.08.2024. With regards Dr N.Kannappan Professor of Pharmacy Annamalai ...

Mon, Aug 19, 6:45 PM

ANANDAKIROUCHENANE E <e.anandakirouchenane@py.gov.in>
to me

Tue, Aug 20, 9:26 PM

Madam,

Noted . will attend

Regards
Dr.E.Anandakirouchenane
Drugs Controlling Cum Licensing Authority
Department of Drugs Control
Govt.Of Puducherry

M.O.
Dr. M. Dhanalakshmi, M.Pharm, Ph.D
Dean
SMVEC Pharmacy College
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Puducherry.

Annexure I

List of The Academic Co-Curriculum Activities were conducted



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DETAILS OF ACADEMIC CO-CURRICULAR ACTIVITIES

S.No	Name of the event	Theme	Date of the event	Resource person
1.	Guest Lecture on "World Malaria Day"	Malaria Disease	25.04.2024	Prof. Rakesh Singh MD Head of Microbiology department, JIPMER, Puducherry.
2.	Guest Lecture on "World Asthma Day"	Asthma Education Empowers	06.05.2024	Dr.V.Thillai Sekar Associate Professor – Department of Microbiology, School of Life sciences, Pondicherry University.


Dr. M. Dhanalakshmi, M.Pharm, Ph.D
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Annexure II

**The Course Curriculum, Syllabi of Fifth Semesters for Bachelor of Pharmacy (B. Pharm)
Programme under SMVEC Pharmacy College Autonomous Regulations R-2023**

Table-V: Course of study for semester V

Course code	Name of the course	No. of hours	Tutorial	Credit points
BP501T	Medicinal Chemistry II – Theory	3	1	4
BP502T	Industrial PharmacyI– Theory	3	1	4
BP503T	Pharmacology II – Theory	3	1	4
BP504T	Pharmacognosy and Phytochemistry II– Theory	3	1	4
BP505T	Pharmaceutical Jurisprudence – Theory	3	1	4
BP506P	Industrial PharmacyI – Practical	4	-	2
BP507P	Pharmacology II – Practical	4	-	2
BP508P	Pharmacognosy and Phytochemistry II –Practical	4	-	2
Mandatory SD-002	Gender equality			
Total		27	5	26

SEMESTER V

M.D.

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Dr. M. Dhanalakshmi, M.Pharm, Ph.D.
Dean
SMVEC Pharmacy College
Madagadipet,
Puducherry.

BP501T. MEDICINAL CHEMISTRY – II (Theory)

45 Hours

Scope: This subject is designed to impart fundamental knowledge on the structure, chemistry and therapeutic value of drugs. The subject emphasizes on structure activity relationships of drugs, importance of physicochemical properties and metabolism of drugs. The syllabus also emphasizes on chemical synthesis of important drugs under each class.

Objectives: Upon completion of the course the student shall be able to

1. Understand the chemistry of drugs with respect to their pharmacological activity
2. Understand the drug metabolic pathways, adverse effect and therapeutic value of drugs
3. Know the Structural Activity Relationship of different class of drugs
4. Study the chemical synthesis of selected drugs

Course Content:

Study of the development of the following classes of drugs, Classification, mechanism of action, uses of drugs mentioned in the course, Structure activity relationship of selective class of drugs as specified in the course and synthesis of drugs superscripted (*)

UNIT- I

10 Hours

Antihistaminic agents: Histamine, receptors and their distribution in the humanbody

H₁-antagonists: Diphenhydramine hydrochloride*, Dimenhydrinate, Doxylamines succinate, Clemastine fumarate, Diphenylpyraline hydrochloride, Triprolenamine hydrochloride, Chlorcyclizine hydrochloride, Meclizine hydrochloride, Buclizine hydrochloride, Chlorpheniramine maleate, Triprolidine hydrochloride*, Phenidamine tartarate, Promethazine hydrochloride*, Trimeprazine tartrate, Cyproheptadine hydrochloride, Azatidine maleate, Astemizole, Loratadine, Cetirizine, Levocetrazine Cromolyn sodium

H₂-antagonists: Cimetidine*, Famotidine, Ranitidin.

Gastric Proton pump inhibitors: Omeprazole, Lansoprazole, Rabeprazole, Pantoprazole

Anti-neoplastic agents:

Alkylating agents: Meclorethamine*, Cyclophosphamide, Melphalan,

Chlorambucil, Busulfan, Thiotepa

Antimetabolites: Mercaptopurine*, Thioguanine, Fluorouracil, Floxuridine, Cytarabine, Methotrexate*, Azathioprine

Antibiotics: Dactinomycin, Daunorubicin, Doxorubicin, Bleomycin

Plant products: Etoposide, Vinblastin sulphate, Vincristin sulphate

Miscellaneous: Cisplatin, Mitotane.

UNIT – II

10 Hours

Anti-anginal:

Vasodilators: Amyl nitrite, Nitroglycerin*, Pentaerythritol tetranitrate, Isosorbide dinitrate*, Dipyridamole.

Calcium channel blockers: Verapamil, Bepridil hydrochloride, Diltiazem hydrochloride, Nifedipine, Amlodipine, Felodipine, Nicardipine, Nimodipine.

Diuretics:

Carbonic anhydrase inhibitors: Acetazolamide*, Methazolamide, Dichlorphenamide.

Thiazides: Chlorthiazide*, Hydrochlorothiazide, Hydroflumethiazide, Cyclothiazide,

Loop diuretics: Furosemide*, Bumetanide, Ethacrynic acid.

Potassium sparing Diuretics: Spironolactone, Triamterene, Amiloride.

Osmotic Diuretics: Mannitol

Anti-hypertensive Agents: Timolol, Captopril, Lisinopril, Enalapril, Benazepril hydrochloride, Quinapril hydrochloride, Methyldopate hydrochloride,* Clonidine hydrochloride, Guanethidine monosulphate, Guanabenz acetate, Sodium nitroprusside, Diazoxide, Minoxidil, Reserpine, Hydralazine hydrochloride.

UNIT- III

10 Hours

Anti-arrhythmic Drugs: Quinidine sulphate, Procainamide hydrochloride, Disopyramide phosphate*, Phenytoin sodium, Lidocaine hydrochloride, Tocainide hydrochloride, Mexiletine hydrochloride, Lorcanide hydrochloride, Amiodarone, Sotalol.

Anti-hyperlipidemic agents: Clofibrate, Lovastatin, Cholesteramine and Cholestipol

Coagulant & Anticoagulants: Menadione, Acetomenadione, Warfarin*, Anisindione, clopidogrel

Drugs used in Congestive Heart Failure: Digoxin, Digitoxin, Nesiritide, Bosentan, Tezosentan.

UNIT- IV

08 Hours

Drugs acting on Endocrine system

Nomenclature, Stereochemistry and metabolism of steroids

Sex hormones: Testosterone, Nandrolone, Progestones, Oestriol, Oestradiol, Oestrone, Diethyl stilbestrol.

Drugs for erectile dysfunction: Sildenafil, Tadalafil.

Oral contraceptives: Mifepristone, Norgestrel, Levonorgestrol

Corticosteroids: Cortisone, Hydrocortisone, Prednisolone, Betamethasone, Dexamethasone

Thyroid and antithyroid drugs: L-Thyroxine, L-Thyronine, Propylthiouracil, Methimazole.

UNIT – V

07 Hours

Antidiabetic agents:

Insulin and its preparations

Sulfonyl ureas: Tolbutamide*, Chlorpropamide, Glipizide, Glimepiride.

Biguanides: Metformin.

Thiazolidinediones: Pioglitazone, Rosiglitazone.

Meglitinides: Repaglinide, Nateglinide.

Glucosidase inhibitors: Acarbose, Voglibose.

Local Anesthetics: SAR of Local anesthetics

Benzoic Acid derivatives; Cocaine, Hexylcaine, Mepylcaine, Cyclomethycaine, Piperocaine.

Amino Benzoic acid derivatives: Benzocaine*, Butamben, Procaine*, Butacaine, Propoxycaine, Tetracaine, Benoxinate.

Lidocaine/Anilide derivatives: Lignocaine, Mepivacaine, Prilocaine, Etidocaine.

Miscellaneous: Phenacaine, Dipreron, Dibucaine.*

Recommended Books (Latest Editions)

1. Wilson and Giswold's Organic medicinal and Pharmaceutical Chemistry.
2. Foye's Principles of Medicinal Chemistry.
3. Burger's Medicinal Chemistry, Vol I to IV.
4. Introduction to principles of drug design- Smith and Williams.
5. Remington's Pharmaceutical Sciences.
6. Martindale's extra pharmacopoeia.
7. Organic Chemistry by I.L. Finar, Vol. II.
8. The Organic Chemistry of Drug Synthesis by Lednicer, Vol. 1 to 5.
9. Indian Pharmacopoeia.
10. Text book of practical organic chemistry- A.I.Vogel.

BP 502 T. Industrial PharmacyI (Theory)

45 Hours

Scope: Course enables the student to understand and appreciate the influence of pharmaceutical additives and various pharmaceutical dosage forms on the performance of the drug product.

Objectives: Upon completion of the course the student shall be able to

1. Know the various pharmaceutical dosage forms and their manufacturing techniques.
2. Know various considerations in development of pharmaceutical dosage forms
3. Formulate solid, liquid and semisolid dosage forms and evaluate them for their quality

Course content:

3 hours/ week

UNIT-I

07 Hours

Preformulation Studies: Introduction to preformulation, goals and objectives, study of physicochemical characteristics of drug substances.

a. Physical properties: Physical form (crystal & amorphous), particle size, shape, flow properties, solubility profile (pKa, pH, partition coefficient), polymorphism

b. Chemical Properties: Hydrolysis, oxidation, reduction, racemisation, polymerization
BCS classification of drugs & its significant

Application of preformulation considerations in the development of solid, liquid oral and parenteral dosage forms and its impact on stability of dosage forms.

UNIT-II

10 Hours

Tablets:

- a. Introduction, ideal characteristics of tablets, classification of tablets. Excipients, Formulation of tablets, granulation methods, compression and processing problems. Equipments and tablet tooling.
- b. Tablet coating: Types of coating, coating materials, formulation of coating composition, methods of coating, equipment employed and defects in coating.
- c. Quality control tests: In process and finished product tests

Liquid orals: Formulation and manufacturing consideration of syrups and elixirs suspensions and emulsions; Filling and packaging; evaluation of liquid orals official in pharmacopoeia

M. Q.

112

UNIT-III

08 Hours

Capsules:

- a. **Hard gelatin capsules:** Introduction, Production of hard gelatin capsule shells. size of capsules, Filling, finishing and special techniques of formulation of hard gelatin capsules, manufacturing defects. In process and final product quality control tests for capsules.
- b. **Soft gelatin capsules:** Nature of shell and capsule content, size of capsules, importance of base adsorption and minim/gram factors, production, in process and final product quality control tests. Packing, storage and stability testing of soft gelatin capsules and their applications.

Pellets: Introduction, formulation requirements, pelletization process, equipments for manufacture of pellets

UNIT-IV

10 Hours

Parenteral Products:

- a. Definition, types, advantages and limitations. Preformulation factors and essential requirements, vehicles, additives, importance of isotonicity
- b. Production procedure, production facilities and controls, aseptic processing
- c. Formulation of injections, sterile powders, large volume parenterals and lyophilized products.
- d. Containers and closures selection, filling and sealing of ampoules, vials and infusion fluids. Quality control tests of parenteral products.

Ophthalmic Preparations: Introduction, formulation considerations; formulation of eye drops, eye ointments and eye lotions; methods of preparation; labeling, containers; evaluation of ophthalmic preparations

UNIT-V

10 Hours

Cosmetics: Formulation and preparation of the following cosmetic preparations: lipsticks, shampoos, cold cream and vanishing cream, tooth pastes, hair dyes and sunscreens.

Pharmaceutical Aerosols: Definition, propellants, containers, valves, types of aerosol systems; formulation and manufacture of aerosols; Evaluation of aerosols; Quality control and stability studies.

Packaging Materials Science: Materials used for packaging of pharmaceutical products, factors influencing choice of containers, legal and official requirements for containers, stability aspects of packaging materials, quality control tests.

BP 506 P. Industrial PharmacyI (Practical)

4 Hours/week

1. Preformulation studies on paracetamol/asparin/or any other drug
2. Preparation and evaluation of Paracetamol tablets
3. Preparation and evaluation of Aspirin tablets
4. Coating of tablets- film coating of tables/granules
5. Preparation and evaluation of Tetracycline capsules
6. Preparation of Calcium Gluconate injection
7. Preparation of Ascorbic Acid injection
8. Qulaity control test of (as per IP) marketed tablets and capsules
9. Preparation of Eye drops/ and Eye ointments
10. Preparation of Creams (cold / vanishing cream)
11. Evaluation of Glass containers (as per IP)

Recommended Books: (Latest Editions)

1. Pharmaceutical dosage forms - Tablets, volume 1 -3 by H.A. Liberman, Leon Lachman &J.B.Schwartz
2. Pharmaceutical dosage form - Parenteral medication vol- 1&2 by Liberman & Lachman
3. Pharmaceutical dosage form disperse system VOL-1 by Liberman & Lachman
4. Modern Pharmaceutics by Gilbert S. Banker & C.T. Rhodes, 3rd Edition
5. Remington: The Science and Practice of Pharmacy, 20th edition Pharmaceutical Science (RPS)
6. Theory and Practice of Industrial Pharmacy by Liberman & Lachman
7. Pharmaceutics- The science of dosage form design by M.E.Aulton, Churchill livingstone, Latest edition
8. Introduction to Pharmaceutical Dosage Forms by H. C.Ansel, Lea &Febiger, Philadelphia, 5th edition, 2005
9. Drug stability - Principles and practice by Cartensen & C.J. Rhodes, 3rd Edition, Marcel Dekker Series, Vol 107.

Scope: 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.

Objectives: Upon completion of this course the student should be able to

1. Understand the mechanism of drug action and its relevance in the treatment of different diseases
2. Demonstrate isolation of different organs/tissues from the laboratory animals by simulated experiments
3. Demonstrate the various receptor actions using isolated tissue preparation
4. Appreciate correlation of pharmacology with related medical sciences

Course Content:

UNIT-I

10hours

1. Pharmacology of drugs acting on cardio vascular system

- a. Introduction to hemodynamic and electrophysiology of heart.
- b. Drugs used in congestive heart failure
- c. Anti-hypertensive drugs.
- d. Anti-anginal drugs.
- e. Anti-arrhythmic drugs.
- f. Anti-hyperlipidemic drugs.

UNIT-II

10hours

1. Pharmacology of drugs acting on cardio vascular system

- a. Drug used in the therapy of shock.
- b. Hematinics, coagulants and anticoagulants.
- c. Fibrinolytics and anti-platelet drugs
- d. Plasma volume expanders

2. Pharmacology of drugs acting on urinary system

- a. Diuretics
- b. Anti-diuretics.

UNIT-III

10hours

3. Autocoids and related drugs

- a. Introduction to autocoids and classification
- b. Histamine, 5-HT and their antagonists.
- c. Prostaglandins, Thromboxanes and Leukotrienes.
- d. Angiotensin, Bradykinin and Substance P.
- e. Non-steroidal anti-inflammatory agents
- f. Anti-gout drugs
- g. Antirheumatic drugs

UNIT-IV

08hours

5. Pharmacology of drugs acting on endocrine system

- a. Basic concepts in endocrine pharmacology.
- b. Anterior Pituitary hormones- analogues and their inhibitors.
- c. Thyroid hormones- analogues and their inhibitors.
- d. Hormones regulating plasma calcium level- Parathormone, Calcitonin and Vitamin-D.
- d. Insulin, Oral Hypoglycemic agents and glucagon.
- e. ACTH and corticosteroids.

UNIT-V

07hours

5. Pharmacology of drugs acting on endocrine system

- a. Androgens and Anabolic steroids.
- b. Estrogens, progesterone and oral contraceptives.
- c. Drugs acting on the uterus.

6. Bioassay

- a. Principles and applications of bioassay.
- b. Types of bioassay
- c. Bioassay of insulin, oxytocin, vasopressin, ACTH, d-tubocurarine, digitalis, histamine and 5-HT


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BP 507 P. PHARMACOLOGY-II (Practical)

4Hrs/Week

1. Introduction to *in-vitro* pharmacology and physiological salt solutions.
2. Effect of drugs on isolated frog heart.
3. Effect of drugs on blood pressure and heart rate of dog.
4. Study of diuretic activity of drugs using rats/mice.
5. DRC of acetylcholine using frog rectus abdominis muscle.
6. Effect of physostigmine and atropine on DRC of acetylcholine using frog rectus abdominis muscle and rat ileum respectively.
7. Bioassay of histamine using guinea pig ileum by matching method.
8. Bioassay of oxytocin using rat uterine horn by interpolation method.
9. Bioassay of serotonin using rat fundus strip by three point bioassay.
10. Bioassay of acetylcholine using rat ileum/colon by four point bioassay.
11. Determination of PA_2 value of prazosin using rat anococcygeus muscle (by Schilds plot method).
12. Determination of PD_2 value using guinea pig ileum.
13. Effect of spasmogens and spasmolytics using rabbit jejunum.
14. Anti-inflammatory activity of drugs using carrageenan induced paw-edema model.
15. Analgesic activity of drug using central and peripheral methods

Note: All laboratory techniques and animal experiments are demonstrated by simulated experiments by softwares and videos

Recommended Books (Latest Editions)

1. Rang H. P., Dale M. M., Ritter J. M., Flower R. J., Rang and Dale's Pharmacology, Churchill Livingstone Elsevier
2. Katzung B. G., Masters S. B., Trevor A. J., Basic and clinical pharmacology, Tata Mc Graw-Hill.
3. Goodman and Gilman's, The Pharmacological Basis of Therapeutics
4. Marry Anne K. K., Lloyd Yee Y., Brian K. A., Robbin L.C., Joseph G. B., Wayne A. K., Bradley R.W., Applied Therapeutics, The Clinical use of Drugs, The Point Lippincott Williams & Wilkins.
5. Mycek M.J, Gelnet S.B and Perper M.M. Lippincott's Illustrated Reviews- Pharmacology.
6. K.D.Tripathi. Essentials of Medical Pharmacology, , JAYPEE Brothers Medical Publishers (P) Ltd, New Delhi.
7. Sharma H. L., Sharma K. K., Principles of Pharmacology, Paras medical publisher
8. Modern Pharmacology with clinical Applications, by Charles R.Craig & Robert.
9. Ghosh MN. Fundamentals of Experimental Pharmacology. Hilton & Company, Kolkata.
10. Kulkarni SK. Handbook of experimental pharmacology. Vallabh Prakashan.

BP504 T. PHARMACOGNOSY AND PHYTOCHEMISTRY II (Theory)

45Hours

Scope: The main purpose of subject is to impart the students the knowledge of how the secondary metabolites are produced in the crude drugs, how to isolate and identify and produce them industrially. Also this subject involves the study of producing the plants and phytochemicals through plant tissue culture, drug interactions and basic principles of traditional system of medicine

Objectives: Upon completion of the course, the student shall be able

1. to know the modern extraction techniques, characterization and identification of the herbal drugs and phytoconstituents
2. to understand the preparation and development of herbal formulation.
3. to understand the herbal drug interactions
4. to carryout isolation and identification of phytoconstituents

Course Content:

UNIT-I

7 Hours

Metabolic pathways in higher plants and their determination

- a) Brief study of basic metabolic pathways and formation of different secondary metabolites through these pathways- Shikimic acid pathway, Acetate pathways and Amino acid pathway.
- b) Study of utilization of radioactive isotopes in the investigation of Biogenetic studies.

UNIT-II

14 Hours

General introduction, composition, chemistry & chemical classes, biosources, therapeutic uses and commercial applications of following secondary metabolites:

Alkaloids: Vinca, Rauwolfia, Belladonna, Opium,

Phenylpropanoids and Flavonoids: Lignans, Tea, Ruta

Steroids, Cardiac Glycosides & Triterpenoids: Liquorice, Dioscorea, Digitalis

Volatile oils: Mentha, Clove, Cinnamon, Fennel, Coriander,

Tannins: Catechu, Pterocarpus

Resins: Benzoin, Guggul, Ginger, Asafoetida, Myrrh, Colophony

Glycosides: Senna, Aloes, Bitter Almond

Iridoids, Other terpenoids & Naphthaquinones: Gentian, Artemisia, taxus, carotenoids

UNIT-III

06 Hours

Isolation, Identification and Analysis of Phytoconstituents

- a) Terpenoids: Menthol, Citral, Artemisin
- b) Glycosides: Glycyrrhetic acid & Rutin
- c) Alkaloids: Atropine, Quinine, Reserpine, Caffeine
- d) Resins: Podophyllotoxin, Curcumin

UNIT-IV

10 Hours

Industrial production, estimation and utilization of the following phytoconstituents: Forskolin, Sennoside, Artemisinin, Diosgenin, Digoxin, Atropine, Podophyllotoxin, Caffeine, Taxol, Vincristine and Vinblastine

UNIT V

8 Hours

Basics of Phytochemistry

Modern methods of extraction, application of latest techniques like Spectroscopy, chromatography and electrophoresis in the isolation, purification and identification of crude drugs.

BP 508 P. PHARMACOGNOSY AND PHYTOCHEMISTRY II (Practical)
4 Hours/Week

1. Morphology, histology and powder characteristics & extraction & detection of: Cinchona, Cinnamon, Senna, Clove, Ephedra, Fennel and Coriander
2. Exercise involving isolation & detection of active principles
 - a. Caffeine - from tea dust.
 - b. Diosgenin from Dioscorea
 - c. Atropine from Belladonna
 - d. Sennosides from Senna
3. Separation of sugars by Paper chromatography
4. TLC of herbal extract
5. Distillation of volatile oils and detection of phytoconstituents by TLC
6. Analysis of crude drugs by chemical tests: (i) Asafoetida (ii) Benzoin (iii) Colophony (iv) Aloes (v) Myrrh

Recommended Books: (Latest Editions)

1. W.C.Evans, Trease and Evans Pharmacognosy, 16th edition, W.B. Saunders & Co., London, 2009.
2. Mohammad Ali. Pharmacognosy and Phytochemistry, CBS Publishers & Distribution, New Delhi.
3. Text book of Pharmacognosy by C.K. Kokate, Purohit, Gokhale (2007), 37th Edition, Nirali Prakashan, New Delhi.
4. Herbal drug industry by R.D. Choudhary (1996), 1st Edn, Eastern Publisher, New Delhi.
5. Essentials of Pharmacognosy, Dr.SH.Ansari, 1st edition, Birla publications, New Delhi, 2007
6. Herbal Cosmetics by H.Pande, Asia Pacific Business press, Inc, New Delhi.
7. A.N. Kalia, Textbook of Industrial Pharmacognosy, CBS Publishers, New Delhi, 2005.
8. R Endress, Plant cell Biotechnology, Springer-Verlag, Berlin, 1994.
9. Pharmacognosy & Pharmacobiotechnology. James Bobbers, Marilyn KS, VE Tylor.
10. The formulation and preparation of cosmetic, fragrances and flavours.
11. Remington's Pharmaceutical sciences.
12. Text Book of Biotechnology by Vyas and Dixit.
13. Text Book of Biotechnology by R.C. Dubey.

BP 505 T. PHARMACEUTICAL JURISPRUDENCE (Theory)

45 Hours

Scope: This course is designed to impart basic knowledge on important legislations related to the profession of pharmacy in India.

Objectives: Upon completion of the course, the student shall be able to understand:

1. The Pharmaceutical legislations and their implications in the development and marketing of pharmaceuticals.
2. Various Indian pharmaceutical Acts and Laws
3. The regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals
4. The code of ethics during the pharmaceutical practice

Course Content:

UNIT-I

10 Hours

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.

UNIT-II

10 Hours

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

UNIT-III

10 Hours

- **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

UNIT-IV

08 Hours

- **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)

UNIT-V

07 Hours

- **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)**

Recommended books: (Latest Edition)

1. Forensic Pharmacy by B. Suresh

2. Text book of Forensic Pharmacy by B.M. Mithal
3. Hand book of drug law-by M.L. Mehra
4. A text book of Forensic Pharmacy by N.K. Jain
5. Drugs and Cosmetics Act/Rules by Govt. of India publications.
6. Medicinal and Toilet preparations act 1955 by Govt. of India publications.
7. Narcotic drugs and psychotropic substances act by Govt. of India publications
8. Drugs and Magic Remedies act by Govt. of India publication
9. Bare Acts of the said laws published by Government. Reference books (Theory)

Annexure III

Regulations for Diploma in Pharmacy (D.Pharm) Programme



SRI MANAKULA VINAYAGAR
ENGINEERING COLLEGE
(AN AUTONOMOUS INSTITUTION)



SMVEC PHARMACY COLLEGE

D.Pharm Regulations ER-2020
for
Diploma in Pharmacy Programme
(With effect from academic year 2024-25)



M.Q.

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DIPLOMA IN PHARMACY PROGRAMME

(2 YEARS) REGULATIONS - ER 2020

CHAPTER 1

1. Short title and commencement

Diploma course in Pharmacy. Approved by **SMVEC Pharmacy College**. These regulations may be called the Education Regulations, 2020 for D.Pharm

2. They shall come into force on the the Academic year 2024-25.

3. **Diploma in Pharmacy (Part-I, Part-II and Part-III)** shall consist of a certificate of having completed the course of study and passed the examination after satisfactory completing the practical training as prescribed in Chapter-2 and Chapter-3 of these regulations.

CHAPTER 2

4. Diploma in Pharmacy (Part-I and Part-II)-

Minimum qualification for admission to Diploma in Pharmacy-A pass in 10+2 examination (science academic stream) with Physics, Chemistry and Biology or Mathematics.

or

Any other qualification approved by the Pharmacy Council of India as equivalent to the above examination.

Provided that there shall be reservation of seats for the Scheduled Castes and the Scheduled Tribes candidates in accordance with the instructions issued by the Central Government /State Governments /Union territory administrations as the case may be from time to time.

5. Duration of the course-

(1) The duration of the course shall be for two academic years. Each academic year shall be spread over a period of not less than one hundred and eighty working days.

(2) In addition there shall be a five hundred hours of practical training spread over a period of not less than three months.

6. **Course of study-** The course of study for Diploma in Pharmacy Part-I and Diploma in Pharmacy Part-II shall include the subjects as given in the Tables I & II below. The number of hours devoted to each subject for its teaching in Theory and Practical, shall not be less than that noted against it in columns 2 and 3 of the Tables below.

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TABLE III
Diploma in Pharmacy (Part III)
Practical Training – 500 hours

Activities

- 1) Stocking of Drugs and Medical Devices
- 2) Inventory Control Procedures
- 3) Handling of prescriptions
- 4) Dispensing (250 hours)
- 5) Patient counseling

7. **Syllabus-** The syllabus for each subject of study shall be as prescribed by the Pharmacy Council of India from time to time.

8. **Approval of the authority conducting the course of study-**

- (1) No authority in a State shall start or conduct Diploma in Pharmacy course of study without the prior approval of the Pharmacy Council of India.
- (2) The course of regular academic study prescribed under regulation 6 shall be conducted in an institution, approved by the Pharmacy Council of India under sub-section (1) of Section 12 of the Pharmacy Act, 1948

Provided that the Pharmacy Council of India shall not approve any institution under this regulation unless it provides adequate arrangements for teaching in regard to building, accommodation, equipments and teaching staff etc. as specified in Appendix-A to these regulations which may be amended by the Pharmacy Council of India from time to time.

9. **Examinations-**

- 1) There shall be an annual examination at the end of the academic year.
- 2) If necessary, there shall be a supplementary examination for the students who are not able to pass Diploma in Pharmacy Part-I or Part-II, as the case may be, as per the criteria specified by the examining authority.
- 3) The examinations shall be of written and practical (including viva – voce) nature, carrying maximum marks for each part of a subject, as indicated in Table IV and V below.


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10. Eligibility for appearing at the Diploma in Pharmacy Part-I and Part II examination-

Only such candidates who produce certificate from the Head of the academic institution in which he/she has undergone the Diploma in Pharmacy Part-I and Part-II course in proof of his/her having regularly and satisfactorily undergone the course of study by attending not less than 75% of the classes held both in theory and in practical separately in each subject shall be eligible for appearing at the Diploma in Pharmacy (Part-I) or (Part II) examination, as the case may be.

11. Mode of examinations-

- (1) Theory and Practical examination in the subjects mentioned in Tables – IV & V shall be of three hours duration. Both Theory and Practical are considered as two separate papers.
- (2) A candidate who fails in theory or practical examination of a subject shall re-appear for the failed subject. Theory and Practical of a particular subject are considered as individual subjects for the purpose of pass criteria.
- (3) Practical examination shall also consist of a viva- voce examination.

12. Award of sessional marks and maintenance of records-

- (1) A regular record of both theory and practical class work and examinations held in an institution imparting training for diploma in Pharmacy Part-I and diploma in Pharmacy Part-II courses, shall be maintained for each student in the institution and 20 marks for each theory and 20 marks for each practical subject shall be allotted as sessional marks.
- (2) There shall be two or more periodic sessional (internal assessment) examinations during each academic year. The highest aggregate of any two performances shall form the basis of calculating sessional marks.
- (3) The sessional marks in practicals shall be allotted on the following basis:-
 - (i) Actual performance in the sessional / spacing examination = 10 marks.
 - (ii) Day to day assessment in the practical class/spacing work = 10 marks.

13. Minimum marks for passing the examination - A student shall not be declared to have passed Diploma in Pharmacy examination unless he/she secures at least 40% marks in each of the subjects separately in the theory as well as the practical examinations, including sessional marks. The candidates securing 60% marks or above in aggregate in all subjects shall be declared to have passed in first class. The candidates securing 75% marks or above in any subject or subjects shall be declared to have passed with distinction in that subject or those subjects. The grant of first class and distinction shall be subject to the condition that the candidate shall pass all the

-
- (2) The institutions referred in sub-regulation (1) shall be eligible to impart training subject to the condition that number of student pharmacists that may be taken in any hospital, dispensary or pharmacy licensed under the Drugs and Cosmetics Rules, 1945 made under the Drugs and Cosmetics Act, 1940, shall not exceed four where there is one registered pharmacist engaged in the work in which the student pharmacist is undergoing practical training, where there is more than one registered pharmacist similarly engaged, the number shall not exceed two for each additional such registered pharmacist.
 - (3) In the course of practical training, the trainee shall have exposure to -
 - (i) Working knowledge of keeping of records required by various Legislative Acts concerning the profession of pharmacy; and
 - (ii) Practical experience in activities mentioned in Table III under regulation 6 of these regulations.
 - (4) The practical training shall be not less than five hundred hours spread over a period of not less than three months provided that not less than two hundred and fifty hours are devoted to actual dispensing of prescriptions.

19. Procedure to be followed prior to commencement of the training-

- (1) The head of institution imparting practical training, on application, shall supply in triplicate 'Practical Training Contract Form for Pharmacist' (hereinafter referred to as the Contract Form) to the candidate eligible to undertake the said practical training. The Contract Form shall be as specified in Appendix-D to these regulations.
- (2) The head of institution imparting practical training shall fill Section I of the Contract Form. The trainee shall fill Section II of the said Contract Form and the head of the institution agreeing to impart the training (hereinafter referred to as the Apprentice Master) shall fill Section III of the said Contract form.
- (3) It shall be the responsibility of the trainee to ensure that one copy (hereinafter referred to as the first copy of the Contract Form) so filled is submitted to the head of institution imparting practical training and the other two copies (hereinafter referred to as the second copy and the third copy) shall be filed with the Apprentice Master (if he so desires) or with the trainee till completion of the training.

20. Certificate of passing Diploma in Pharmacy Part-III-

On satisfactory completion of the practical training period the Apprentice Master shall fill Section IV of the second copy and third copy of the Contract Form and forward it to the head of institution imparting practical training who shall suitably enter in the first copy of the entries from the second copy and the third copy and shall fill Section V of the three copies of Contract

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21.2 Board of Studies (BoS)

Composition of Board of Studies:

1. Head of the Department concerned (Chairperson).

All faculty members of the Department.

Two subject experts from outside the parent University are to be nominated by the Academic Council.

One expert is to be nominated by the Vice-Chancellor from a panel of six recommended by the Autonomous College Principal.

One representative from industry/corporate sector/allied areas to be nominated by the Principal.

One member of the College alumni to be nominated by the Principal.

Experts from outside the Autonomous College, whenever special courses of studies are to be formulated, to be nominated by the Principal.

Term: The term of the nominated members shall be three years.

Meetings: Meetings of the Board of Studies shall be held at least once every six months.

Functions:

The Board of Studies shall recommend the following to the Academic Council:

1. Courses of studies
2. Measures for the improvement of the standards of teaching and research
3. Any other academic matter.

21.3 Academic Standing Committee (ASC)

Composition of Academic Standing Committee is same as that of AC, except external members. ASC shall perform the functions under emergency situations subject to ratification by the AC.

21.4 Academic Appeal Board (AAB)

The Academic Appeal Board is constituted with Dean Academics as convener and two senior level professors as members, and the concerned Head of the Department and Class Advisor asco-opted members. The board will receive the grievances/complaints in writing from the aggrieved student regarding anomaly in award of marks. The board will examine the complaints and recommend appropriate measures to the Head of the Institution, for necessary action.


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(i). Defining and redefining the Programme Educational Objectives (PEOs) and Programme Outcomes (POs) based on the recommendations by department academic committee.

(j) Study the achievement of PEOs and POs reported by department evaluation committee and suggest measures for improvement.

21.6 Board of Examinations (BoE)

Composition

21.6.1 Head of the Institution (Chairperson)

21.6.2 Dean Academics

21.6.3 Controller of Examination (CoE): Member Secretary

21.6.4 One expert possessing ten years of industrial/ field experience nominated by the Chairman

21.6.5 Coordinators (Examinations, Assessment, Results and Tabulation)

Functions of BoE:

(a). The BoE shall

i. Ensure proper performance of the various duties in conducting examinations viz. paper setting, time table preparation, assessment and declaration of results.

ii. Recommend examination reforms and shall implement after the approval of academic council.

iii. Prepare the detailed time table of examinations as per the schedule approved by academic council.

iv. Arrange for strict vigilance during the conduct of examination so as to avoid use of unfair means by the students, faculty and invigilators.

(b). Chairman, BoE shall constitute Complaint Redressal Committee (CRC) consisting of three members as and when required to deal with the complaints related to the conduct of examinations.

(c). The recommendations of the CRC shall be approved by Chairman for the BoE to take appropriate disciplinary actions in the concerned matter. The disciplinary actions shall be endorsed by the BoE.

(d). The BoE shall perform duties and responsibilities that are assigned by Academic Council of the institute from time to time.

21.7 Department Consultative Committee (DCC) Composition

21.7.1 Head of Department (Chairperson)

21.7.2 Five faculty members (at least one from each specialization) nominated by HOD

21.7.3 Member Secretary: Programme Academic Coordinator / Programme Evaluation Coordinator

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21.9 Department Evaluation Coordinator (DEC)

The functions and duties of DEC are:

- (a). Conduct course and graduate exit survey, make arrangements for feedback from stakeholders (industry/employer/alumni/student) and feedback analysis.
- (b). Monitor the assessment of course outcome.
- (c) Compute / assess / evaluate the achievement of PEOs and POs as per NBA/NAAC requirements.
- (d). Compile the information required for the preparation of Annual Quality Assurance Report(AQAR) by the Internal Quality Assurance Cell (IQAC).
- (e). Extend necessary help to department academic and evaluation committee.

21.10 Class Advisor

Head of the Department will allot one faculty member to be the class advisor for a particular batch of students throughout their period of study. The role of class advisors is as follows:

- (a) To motivate and closely monitor the performance of the students.
- (b) To maintain all important documents of the students for reference/inspection by all committees.
- (c) To work closely with the student counselors on matters related to students and update the details from time to time in student's profile for further reference.
- (d) To build a strong alumni base for the institution by maintaining a possible rapport with students and parents.

21.11 Student Counselor (Mentor)

By guiding and counseling students, faculty can create a greater sense of belongingness amongst the student community. To help the students in planning their courses and for general guidance on the academic programme, the Head of the Department will allot a certain number of students to a teacher of the department who shall function as student counselor throughout the period of study.

The student counselor will guide / monitor the courses chosen by the students, check attendance and progress of the students and counsel them periodically. The student counselor should ensure that each student is made aware of the various options for progress. Students are monitored and guided to become overall performers. Students can select and work for career choices of their interest. The student counselors shall update and maintain the student counselor record of each student under his guidance attached to them. The student counselors shall also help the class advisors to update the students details attached to them.

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Meetings

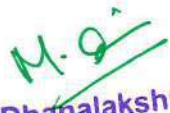
Quality Circle Meeting (QCM) are to be conducted as scheduled below.

Meeting 1	One week before the 1st assessment test
Meeting 2	One week before the 2nd assessment test

During the first meeting of the class committee, the students are to be informed about the assessment procedure as per the framework of the Regulations. During these meetings the student representatives shall meaningfully interact and express opinions and suggestions of the students of the class to improve the effectiveness of the teaching-learning process.

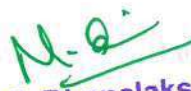
22. Revision of regulations and curriculum

The college may revise, amend or change the regulations of curriculum and syllabi from time to time as and when found necessary as per the requirements of Industry.


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7. ER-2020 DPharm Syllabus – Part I

S. No.	Course Code	Name of the Course	Total Hours	Hours per Week
1.	ER20-11T	Pharmaceutics – Theory	75	3
2.	ER20-11P	Pharmaceutics – Practical	75	3
3.	ER20-12T	Pharmaceutical Chemistry – Theory	75	3
4.	ER20-12P	Pharmaceutical Chemistry – Practical	75	3
5.	ER20-13T	Pharmacognosy – Theory	75	3
6.	ER20-13P	Pharmacognosy – Practical	75	3
7.	ER20-14T	Human Anatomy & Physiology – Theory	75	3
8.	ER20-14P	Human Anatomy & Physiology – Practical	75	3
9.	ER20-15T	Social Pharmacy – Theory	75	3
10.	ER20-15P	Social Pharmacy – Practical	75	3


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	mill and Silverson mixer homogenizer	
	Filtration: Theory of filtration, membrane filter and sintered glass filter	
	Drying: working of fluidized bed dryer and process of freeze drying	
	Extraction: Definition, Classification, method and applications	
5	Tablets – coated and uncoated, various modified tablets (sustained release, extended-release, fast dissolving, double layered)	8
	Capsules - hard and soft gelatine capsules	4
	Liquid oral preparations - solution, syrup, elixir, emulsion, suspension, dry powder for reconstitution	6
	Topical preparations - ointments, creams, pastes, gels, liniments and lotions, suppositories and pessaries	8
	Nasal preparations, Ear preparations	2
	Powders and granules - Insufflations, dusting powders, effervescent powders and effervescent granules	3
	Sterile formulations – Injectables, eye drops and eye ointments	6
	Immunological products: Sera, vaccines, toxoids and their manufacturing methods.	4
6	Basic structure, layout, sections and activities of pharmaceutical manufacturing plants	5
	Quality control and quality assurance: Definition and concepts of quality control & quality assurance, current good manufacturing practice (cGMP), Introduction to concept of calibration and validation	
7	Novel drug delivery systems: Introduction, Classification with examples, advantages and challenges	5


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coating tablets, if possible)

4. Appropriate methods of usage, and storage of special dosage forms including different types of inhalers, spacers, insulin pens
5. Demonstration of quality control tests and evaluation of common dosage forms viz. tablets, capsules, emulsion, sterile injections as per the monographs

Assignments

The students shall be asked to submit written assignments on the following topics (One assignment per student per sessional period. i.e., a minimum of THREE assignments per student)

1. Various systems of measures commonly used in prescribing, compounding and dispensing practices
2. Market preparations (including Fixed Dose Combinations) of each type of dosage forms, generic name, minimum three brand names and label contents of the dosage forms mentioned in theory/practical
3. Overview of various machines / equipments / instruments involved in the formulation and quality control of various dosage forms / pharmaceutical formulations.
4. Overview of extemporaneous preparations at community / hospital pharmacy vs. manufacturing of dosage forms at industrial level
5. Basic pharmaceutical calculations: ratios; conversion to percentage fraction, allegation, proof spirit, isotonicity

Field Visit

The students shall be taken for an industrial visit to pharmaceutical industries to witness and understand the various processes of manufacturing of any of the common dosage forms viz. tablets, capsules, liquid orals, injectables, etc. Individual reports from each student on their learning experience from the field visit shall be submitted.


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Dean

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PHARMACEUTICAL CHEMISTRY – THEORY

Course Code: ER20-12T

75 Hours (3 Hours/week)

Scope: This course is designed to impart basic knowledge on the chemical structure, storage conditions and medicinal uses of organic and inorganic chemical substances used as drugs and pharmaceuticals. Also, this course discusses the impurities, quality control aspects of chemical substances used in pharmaceuticals.

Course Objectives: This course will discuss the following aspects of the chemical substances used as drugs and pharmaceuticals for various disease conditions

1. Chemical classification, chemical name, chemical structure
2. Pharmacological uses, doses, stability and storage conditions
3. Different types of formulations / dosage form available and their brand names
4. Impurity testing and basic quality control tests

Course Outcomes: Upon successful completion of this course, the students will be able to

1. Describe the chemical class, structure and chemical name of the commonly used drugs and pharmaceuticals of both organic and inorganic nature
2. Discuss the pharmacological uses, dosage regimen, stability issues and storage conditions of all such chemical substances commonly used as drugs
3. Describe the quantitative and qualitative analysis, impurity testing of the chemical substances given in the official monographs
4. Identify the dosage form & the brand names of the drugs and pharmaceuticals popular in the marketplace

Chapter	Topic	Hours
1	Introduction to Pharmaceutical chemistry: Scope and objectives Sources and types of errors: Accuracy, precision, significant figures Impurities in Pharmaceuticals: Source and effect of impurities in Pharmacopoeial substances, importance of limit test, Principle and procedures of Limit tests for chlorides, sulphates, iron, heavy metals and arsenic.	8
2	Volumetric analysis: Fundamentals of volumetric analysis, Acid-base titration, non-aqueous titration, precipitation titration, complexometric titration, redox titration Gravimetric analysis: Principle and method.	8
3	Inorganic Pharmaceuticals: Pharmaceutical	7

	Agents: Hydroxy Amphetamine, Pseudoephedrine. Agents With Mixed Mechanism: Ephedrine, Metaraminol • Adrenergic Antagonists: Alpha Adrenergic Blockers: Tolazoline, Phentolamine • Phenoxybenzamine, Prazosin. Beta Adrenergic Blockers: Propranolol*, Atenolol*, Carvedilol • Cholinergic Drugs and Related Agents: Direct Acting Agents: Acetylcholine*, Carbachol, And Pilocarpine. Cholinesterase Inhibitors: Neostigmine*, Edrophonium Chloride, Tacrine Hydrochloride, Pralidoxime Chloride, Echothiopate Iodide • Cholinergic Blocking Agents: Atropine Sulphate*, Ipratropium Bromide Synthetic Cholinergic Blocking Agents: Tropicamide, Cyclopentolate Hydrochloride, Clidinium Bromide, Dicyclomine Hydrochloride*	
7	Drugs Acting on Cardiovascular System • Anti-Arrhythmic Drugs: Quinidine Sulphate, Procainamide Hydrochloride, Verapamil, Phenytoin Sodium*, Lidocaine Hydrochloride, Lorcaïnide Hydrochloride, Amiodarone and Sotalol • Anti-Hypertensive Agents: Propranolol*, Captopril*, Ramipril, Methyldopate Hydrochloride, Clonidine Hydrochloride, Hydralazine Hydrochloride, Nifedipine, • Antianginal Agents: Isosorbide Dinitrate	5
8	Diuretics: Acetazolamide, Frusemide*, Bumetanide, Chlorthalidone, Benzthiazide, Metolazone, Xipamide, Spironolactone	2
9	Hypoglycemic Agents: Insulin and Its Preparations, Metformin*, Glibenclamide*, Glimepiride, Pioglitazone, Repaglinide, Gliflozins, Gliptins	3
10	Analgesic And Anti-Inflammatory Agents: Morphine Analogues, Narcotic Antagonists; Nonsteroidal Anti-Inflammatory Agents (NSAIDs) - Aspirin*, Diclofenac, Ibuprofen*, Piroxicam, Celecoxib, Mefenamic Acid, Paracetamol*, Aceclofenac	3
11	Anti-Infective Agents • Antifungal Agents: Amphotericin-B, Griseofulvin, Miconazole, Ketoconazole*, Itraconazole, Fluconazole*, Naftifine Hydrochloride • Urinary Tract Anti-Infective Agents: Norfloxacin, Ciprofloxacin, Ofloxacin*, Moxifloxacin,	8

3. Test the purity of the selected inorganic and organic compounds against the monograph standards
4. Synthesize the selected chemical substances as per the standard synthetic scheme
5. Perform qualitative tests to systematically identify the unknown chemical substances

Practicals

S. No.	Experiment
1	Limit test for Chlorides; sulphate; Iron; heavy metals
2	Identification tests for Anions and Cations as per Indian Pharmacopoeia
3	Fundamentals of volumetric analysis Preparation of standard solution and standardization of Sodium Hydroxide, Ceric Ammonium Sulfate, Potassium Permanganate
4	Assay of the following compounds - Ferrous sulphate- by redox titration - Calcium gluconate-by complexometric - Sodium chloride-by Modified Volhard's method - Ascorbic acid by cerimetry - Metronidazole by Non-Aqueous Titration - Ibuprofen by alkalimetry
5	Fundamentals of preparative organic chemistry Determination of Melting point and boiling point of organic compounds
6	Preparation of organic compounds - Acetanilide from aniline - Aspirin from salicylic acid
7	Identification and test for purity of pharmaceuticals Aspirin, Caffeine, Paracetamol, Sulfanilamide
8	Systematic Qualitative analysis experiments (4 substances)

PHARMACOGNOSY – THEORY

Course Code: ER20-13T

75 Hours (3 Hours/week)

Scope: This course is designed to impart knowledge on the medicinal uses of various drugs of natural origin. Also, the course emphasizes the fundamental concepts in the evaluation of crude drugs, alternative systems of medicine, nutraceuticals and herbal cosmetics.

Course Objectives: This course will discuss the following aspects of drug substances derived from natural resources.

1. Occurrence, distribution, isolation, identification tests of common phytoconstituents
2. Therapeutic activity and pharmaceutical applications of various natural drug substances and phytoconstituents
3. Biological source, chemical constituents of selected crude drugs and their therapeutic efficacy in common diseases and ailments
4. Basic concepts in quality control of crude drugs and various system of medicines
5. Applications of herbs in health foods and cosmetics

Course Outcomes: Upon successful completion of this course, the students will be able to

1. Identify the important/common crude drugs of natural origin
2. Describe the uses of herbs in nutraceuticals and cosmeceuticals
3. Discuss the principles of alternative system of medicines
4. Describe the importance of quality control of drugs of natural origin

Chapter	Topic	Hours
1	Definition, history, present status and scope of Pharmacognosy	2
2	Classification of drugs: Alphabetical Taxonomical Morphological Pharmacological Chemical Chemo-taxonomical	4
3	Quality control of crude drugs: Different methods of adulteration of crude drugs	6

	Method of preparation of Ayurvedic formulations like: Arista, Asava, Gutika, Taila, Churna, Lehya and Bhasma	
8	Role of medicinal and aromatic plants in national economy and their export potential	2
9	Herbs as health food: Brief introduction and therapeutic applications of: Nutraceuticals, Antioxidants, Pro-biotics, Pre-biotics, Dietary fibres, Omega-3-fatty acids, Spirulina, Carotenoids, Soya and Garlic	4
10	Herbal cosmetics: Sources, chemical constituents, commercial preparations, therapeutic and cosmetic uses of: Aloe vera gel, Almond oil, Lavender oil, Olive oil, Rosemary oil, Sandal Wood oil	4
11	Phytochemical investigation of drugs	2

PHARMACOGNOSY – PRACTICAL

Course Code: ER20-13P

75 Hours (3 Hours/week)

Scope: This course is designed to train the students in physical identification, morphological characterization, physical and chemical characterization and evaluation of commonly used herbal drugs.

Course Objectives: This course will provide hands-on experiences to the students in

1. Identification of the crude drugs based on their morphological characteristics
2. Various characteristic anatomical characteristics of the herbal drugs studied through transverse section
3. Physical and chemical tests to evaluate the crude drugs

Course Outcomes: Upon successful completion of this course, the students will be able to

1. Identify the given crude drugs based on the morphological characteristics
2. Take a transverse section of the given crude drugs
3. Describe the anatomical characteristics of the given crude drug under microscopical conditions
4. Carry out the physical and chemical tests to evaluate the given crude drugs

Practicals

	Importance of Blood groups	
6	Lymphatic system - Lymph and lymphatic system, composition, function and its formation. - Structure and functions of spleen and lymph node.	3
7	Cardiovascular system - Anatomy and Physiology of heart - Blood vessels and circulation (Pulmonary, coronary and systemic circulation) - Cardiac cycle and Heart sounds, Basics of ECG - Blood pressure and its regulation	8
8	Respiratory system - Anatomy of respiratory organs and their functions. - Regulation Mechanism of respiration. - Respiratory volumes and capacities – definitions	4
9	Digestive system - Anatomy and Physiology of GIT - Anatomy and functions of accessory glands - Physiology of digestion and absorption	8
10	Skeletal muscles - Histology - Physiology of muscle contraction - Disorder of skeletal muscles	2
11	Nervous system - Classification of nervous system - Anatomy and physiology of cerebrum, cerebellum, mid brain - Function of hypothalamus, medulla oblongata and basal ganglia - Spinal cord-structure and reflexes - Names and functions of cranial nerves. - Anatomy and physiology of sympathetic and parasympathetic nervous system (ANS)	8
12	Sense organs - Anatomy and physiology of - Eye - Ear - Skin - Tongue	6

Practicals

1. Study of compound microscope
2. General techniques for the collection of blood
3. Microscopic examination of Epithelial tissue, Cardiac muscle, Smooth muscle, Skeletal muscle, Connective tissue and Nervous tissue of ready / pre-prepared slides.
4. Study of Human Skeleton-Axial skeleton and appendicular skeleton
5. Study of appliances used in Haematological experiments (only identification and listing the appliances)
6. Determination of
 - a. Blood group
 - b. ESR
 - c. Haemoglobin content of blood
 - d. Bleeding time and Clotting time
7. Determination of WBC count of blood
8. Determination of RBC count of blood
9. Determination of Differential count of blood
10. Recording of Blood Pressure in various postures, different arms, before and after exertion and interpreting the results
11. Recording of Body temperature (using mercury, digital and IR thermometers at various locations), Pulse rate/ Heart rate (at various locations in the body, before and after exertion), Respiratory Rate
12. Recording Pulse Oxygen (before and after exertion)
13. Recording force of air expelled using Peak Flow Meter
14. Measurement of height, weight, and BMI
15. Study of various systems and organs with the help of chart, models and specimens
 - a) Cardiovascular system
 - b) Respiratory system
 - c) Digestive system
 - d) Urinary system
 - e) Endocrine system
 - f) Reproductive system
 - g) Nervous system
 - h) Eye
 - i) Ear
 - j) Skin

SOCIAL PHARMACY – THEORY

Course Code: ER20-15T
Hours/week)

75 Hours (3

Scope: This course is designed to impart basic knowledge on public health, epidemiology, preventive care and other social health related concepts. Also, to emphasize the roles of pharmacists in the public health programs.

Course Objectives: This course will discuss about basic concepts of

1. Public health and national health programs
2. Preventive healthcare
3. Food and nutrition related health issues
4. Health education & promotion
5. General roles and responsibilities of pharmacists in public health

Course Outcomes: Upon successful completion of this course, the students will be able to

1. Discuss about roles of pharmacists in the various national health programs
2. Describe various sources of health hazards and disease preventive measures
3. Discuss the healthcare issues associated with food and nutritional substances
4. Describe the general roles and responsibilities of pharmacists in public health

Chapter	Topic	Hours
1	Introduction to Social Pharmacy • Definition and Scope. Social Pharmacy as a discipline and its scope in improving the public health. Role of Pharmacists in Public Health. (2) • Concept of Health - WHO Definition, various dimensions, determinants, and health indicators. (3) • National Health Policy – Indian perspective (1) • Introduction to Millennium Development Goals, Sustainable Development Goals, FIP Development Goals (1)	7
2	Preventive healthcare – Role of Pharmacists in the following • Demography and Family Planning (3) • Mother and child health, importance of breastfeeding, ill effects of infant milk substitutes and bottle feeding (2) • Overview of Vaccines, types of immunity and immunization (5)	18

	and, chikungunya (4) • Surface infections – trachoma, tetanus, leprosy (3) • STDs, HIV/AIDS (3)	
5	Introduction to health systems and all ongoing National health programs in India, their objectives, functioning, outcome and the role of pharmacists.	5
6	Role of Pharmacists in disaster management.	2
7	Pharmacoeconomics - basics, Health Insurance, Health Maintenance Organizations (HMOs), Health spending, Out-of-pocket expenses	3

SOCIAL PHARMACY – PRACTICAL

Course Code: ER20-15P
Hours/week)

75 Hours (3

Scope: This course is designed to provide simulated experience in various public health and social pharmacy activities.

Course Objectives: This course will train the students on various roles of pharmacists in public health and social pharmacy activities in the following areas

1. National immunization programs
2. Reproductive and child health programs
3. Food and nutrition related health programs
4. Health education and promotion
5. General roles and responsibilities of the pharmacists in public health
6. First Aid for various emergency conditions including basic life support and cardiopulmonary resuscitation

Course Outcomes: Upon successful completion of this course, the students will be able to

1. Describe the roles and responsibilities of pharmacists in various National health programs
2. Design promotional materials for public health awareness
3. Describe various health hazards including microbial sources
4. Advice on preventive measures for various diseases
5. Provide first aid for various emergency conditions including basic life support and cardiopulmonary resuscitation

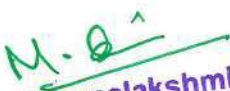

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2. Study the labels of various packed foods to understand their nutritional contents
3. Calorie free sweeteners - market examples, and their contents
4. Breastfeeding counselling, guidance – using Information, Education and Communication (IEC)
5. Information about the organizations working on deaddiction services in the region (city / district, etc.)
6. Role of a pharmacist in disaster management – A case study
7. Overview on the National Tuberculosis Elimination Programme (NTEP)
8. Drug disposal systems in the country, at industry level and citizen level
9. Various Prebiotics or Probiotics (dietary and market products)
10. Emergency preparedness: Study local Government structure with respect to Fire, Police departments, health department
11. Prepare poster/presentation for general public on any one of the World Health Days. e.g., TB Day, AIDS Day, Handwashing Day, World Diabetes Day, World Heart Day, etc.
12. List of home medicines, their storage, safe handling and disposal of unused medicines
13. Responsible Use of Medicines: From Purchase to Disposal
14. Collection of newspaper clips (minimum 5) relevant to any one topic and its submission in an organized form with collective summary based on the news items
15. Read a minimum one article relevant to any theory topic, from Pharma /Science/ or other Periodicals and prepare summary of it for submission
16. Mental health and its significances among the various segments of the society
17. Potential roles of pharmacists in rural India

Field Visits

The students shall be taken in groups to visit any THREE of the following facilities to witness and understand the activities of such centres/facilities from the perspectives of the topics discussed in theory and/or practical courses. Individual reports from each student on their learning experience from the field visits shall be submitted.

1. Garbage Treatment Plant
2. Sewage Treatment Plant
3. Bio-medical Waste Treatment Plant
4. Effluent Treatment Plant
5. Water purification plant
6. Orphanage / Elderly-Care-Home / School and or Hostel/Home for persons with disabilities
7. Primary health care centre


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Annexure IV

The List of Examiners



S M V E C
PHARMACY COLLEGE

(Approved by Pharmacy Council of India and Government of Puducherry)
(Affiliated to Pondicherry University)
Madagadipet, Puducherry - 605 107



Panel of examiners for B. Pharm and Proposed D. Pharm Programme

S.No	Name of the Examiner	Specialization	Year of Experience	Designation & Institution Name	Mobile No	Mail ID
1.	Dr.Arulanandraj.C.N	Pharm. Anaysis	23	Head, Dept. of Ph. Analysis, Mother Theresa post graduate and research institute of health science College of Pharmacy, Pondicherry	9994550093	arulanand_raj@yahoo.co.in
2.	Dr.D.Jothieswari	Pharm. Anaysis	15	Professor and Principal, SVCP, Chittor, AP	9989165610	Jothies_82@yahoo.co.in
3.	Dr.Sundar raj	Pharm. Chemistry	13	Associate Professor, SMR University, Chennai	9952550880	sundarrajan.chemistrysundar@gmail.com
4.	Dr.K.Reeta Vijaya Rani	Pharm. Ceutics	25	Professor, Surya school of Pharmacy, Villupuram	9840503339	Reetarani07@yahoo.co.in
5.	Dr.P.Sureshkumar	Pharm. Ceutics	18	Professor, Shanmugha college of Pharmacy, Erode	9704288984	Surae81@gmail.com
6.	Dr.V.Kannabiran	Pharm. Ceutics	16	Professor, Kamalakshmi Pandurangan college of Pharmacy, Ayyampalayam.	8248580112	kanabrian82@gmail.com

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