MGM INSTITUTE OF HEALTH SCIENCES

(Deemed to be University u/s 3 of UGC Act, 1956)

Grade 'A^{++}' Accredited by NAAC

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Curriculum for

Diploma in Pharmacy

(D. Pharm.)

(with effect from 2023-2024 Batches)

Approved as per AC-50/2024, Dated 27/11/2024

Amended History

1. Approved as per AC-48/2023, Dated 12/12/2023.
2. Amended as per AC-48/2023, Resolution No. 6.25; Dated 12/12/2023.
3. Approved as per AC-49/2024, [Resolution No. 3.28 (Annexure-23B)], [Resolution No. 3.31], [Resolution No. 3.33], [Resolution No. 3.37 (i)] Dated 25/04/2024.
4. Approved as per AC-50/2024, [Resolution No. 3.25(a)], Dated 27/11/2024.

7. ER-2020 D.Pharm Syllabus – Part I

S. No.	Course Code	Name of the Course	Total Theory / Practical Hours	Total Tutorial Hours	Theory / Practical Hours per Week	Tutorial Hours per Week
1.	ER20-11T	Pharmaceutics – Theory	75	25	3	1
2.	ER20-11P	Pharmaceutics – Practical	75	-	3	-
3.	ER20-12T	Pharmaceutical Chemistry – Theory	75	25	3	1
4.	ER20-12P	Pharmaceutical Chemistry – Practical	75	-	3	-
5.	ER20-13T	Pharmacognosy – Theory	75	25	3	1
6.	ER20-13P	Pharmacognosy – Practical	75	-	3	-
7.	ER20-14T	Human Anatomy & Physiology – Theory	75	25	3	1
8.	ER20-14P	Human Anatomy & Physiology – Practical	75	-	3	-
9.	ER20-15T	Social Pharmacy – Theory	75	25	3	1
10.	ER20-15P	Social Pharmacy – Practical	75	-	3	-

Resolution No. 6.25 of Academic Council (AC-48/2023): The syllabus and examination scheme of Pharmacy Council of India for B.Pharm. and D.Pharm. to be incorporated into MGM Institute of Health Sciences from the academic year 2023-24 [Annexure-65A & 65B].

PHARMACEUTICS – THEORY

Course Code: ER20-11T **75 Hours (3 Hours/week)**

Scope: This course is designed to impart basic knowledge and skills on the art and science of formulating and dispensing different pharmaceutical dosage forms.

Course Objectives: This course will discuss the following aspects of pharmaceutical dosage forms

1. Basic concepts, types and need
2. Advantages and disadvantages, methods of preparation / formulation
3. Packaging and labelling requirements
4. Basic quality control tests, concepts of quality assurance and good manufacturing practices

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

1. Describe about the different dosage forms and their formulation aspects
2. Explain the advantages, disadvantages, and quality control tests of different dosage forms
3. Discuss the importance of quality assurance and good manufacturing practices

Chapter	Topics	Hours
1	• History of the profession of Pharmacy in India in relation to Pharmacy education, industry, pharmacy practice, and various professional associations. • Pharmacy as a career • Pharmacopoeia: Introduction to IP, BP, USP, NF and Extra Pharmacopoeia. Salient features of Indian Pharmacopoeia	7
2	**Packaging materials**: Types, selection criteria, advantages and disadvantages of glass, plastic, metal, rubber as packaging materials	5
3	**Pharmaceutical aids:** Organoleptic (Colouring, flavouring, and sweetening) agents **Preservatives:** Definition, types with examples and uses	3
4	**Unit operations:** Definition, objectives/applications, principles, construction, and workings of:	9
	Size reduction: hammer mill and ball mill	
	Size separation: Classification of powders according to IP, Cyclone separator, Sieves and standards of sieves	

	Mixing: Double cone blender, Turbine mixer, Triple roller 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, multi-layered, etc.)	**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** **Quality control and quality assurance**: Definition and concepts of quality control and quality assurance, current good manufacturing practice (cGMP), Introduction to the concept of calibration and validation	**5**
7	**Novel drug delivery systems:** Introduction, Classification with examples, advantages, and challenges	**5**

PHARMACEUTICS – PRACTICAL

Course Code: ER20-11P **75 Hours (3 Hours/week)**

Scope: This course is designed to train the students in formulating and dispensing common pharmaceutical dosage forms.

Course Objectives: This course will discuss and train the following aspects of preparing and dispensing various pharmaceutical dosage forms

1. Calculation of working formula from the official master formula

2. Formulation of dosage forms based on working formula
3. Appropriate Packaging and labelling requirements
4. Methods of basic quality control tests

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

1. Calculate the working formula from the given master formula
2. Formulate the dosage form and dispense in an appropriate container
3. Design the label with the necessary product and patient information
4. Perform the basic quality control tests for the common dosage forms

Practicals

1. Handling and referring the official references: Pharmacopoeias, Formularies, etc. for retrieving formulas, procedures, etc.

2. Formulation of the following dosage forms as per monograph standards and dispensing with appropriate packaging and labelling
   - **Liquid Oral:** Simple syrup, Piperazine citrate elixir, Aqueous Iodine solution
   - **Emulsion:** Castor oil emulsion, Cod liver oil emulsion
   - **Suspension:** Calamine lotion, Magnesium hydroxide mixture
   - **Ointment:** Simple ointment base, Sulphur ointment
   - **Cream:** Cetrimide cream
   - **Gel:** Sodium alginate gel
   - **Liniment:** Turpentine liniment, White liniment BPC
   - **Dry powder:** Effervescent powder granules, Dusting powder
   - **Sterile Injection:** Normal Saline, Calcium gluconate Injection
   - **Hard Gelatine Capsule:** Tetracycline capsules
   - **Tablet:** Paracetamol tablets
3. Formulation of at least five commonly used cosmetic preparations – e.g. cold cream, shampoo, lotion, toothpaste etc

4. Demonstration on various stages of tablet manufacturing processes

5. Appropriate methods of usage and storage of all dosage forms including special dosage such as different types of inhalers, spacers, insulin pens
6. 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, their 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, alligation, 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.

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 formulations, market preparations, storage conditions and uses of ● **Haematinics:** Ferrous sulphate, Ferrous fumarate, Ferric ammonium citrate, Ferrous ascorbate, Carbonyl iron ● **Gastro-intestinal Agents:** Antacids :Aluminium hydroxide gel, Magnesium hydroxide, Magaldrate, Sodium bicarbonate, Calcium Carbonate, Acidifying agents, Adsorbents, Protectives, Cathartics ● **Topical agents:** Silver Nitrate, Ionic Silver, Chlorhexidine Gluconate, Hydrogen peroxide, Boric acid, Bleaching powder, Potassium permanganate ● **Dental products:** Calcium carbonate, Sodium fluoride, Denture cleaners, Denture adhesives, Mouth washes ● **Medicinal gases:** Carbon dioxide, nitrous oxide, oxygen	**7**
4	Introduction to nomenclature of organic chemical systems with particular reference to heterocyclic compounds containing up to Three rings	**2**
Study of the following category of medicinal compounds with respect to classification, chemical name, chemical structure (compounds marked with*) uses, stability and storage conditions, different types of formulations and their popular brand names		
5	**Drugs Acting on Central Nervous System** ● **Anaesthetics:** Thiopental Sodium*, Ketamine Hydrochloride*, Propofol ● **Sedatives and Hypnotics:** Diazepam*, Alprazolam*, Nitrazepam, Phenobarbital* ● **Antipsychotics:** Chlorpromazine Hydrochloride*, Haloperidol*, Risperidone*, Sulpiride*, Olanzapine, Quetiapine, Lurasidone ● **Anticonvulsants:** Phenytoin*, Carbamazepine*, Clonazepam, Valproic Acid*, Gabapentin*, Topiramate, Vigabatrin, Lamotrigine ● **Anti-Depressants:** Amitriptyline Hydrochloride*, Imipramine Hydrochloride*, Fluoxetine*, Venlafaxine, Duloxetine, Sertraline, Citalopram, Escitalopram, Fluvoxamine, Paroxetine	**9**
6	**Drugs Acting on Autonomic Nervous System** ● **Sympathomimetic Agents:** ***Direct Acting:*** Nor-Epinephrine*, Epinephrine, Phenylephrine,	**9**

	Dopamine*, Terbutaline, Salbutamol (Albuterol), Naphazoline*, Tetrahydrozoline. ***Indirect Acting 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, Lorcainide 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	**8**

	● **Urinary Tract Anti-Infective Agents:** Norfloxacin, Ciprofloxacin, Ofloxacin*, Moxifloxacin, ● **Anti-Tubercular Agents:** INH*, Ethambutol, Para Amino Salicylic Acid, Pyrazinamide, Rifampicin, Bedaquiline, Delamanid, Pretomanid* ● **Antiviral Agents:** Amantadine Hydrochloride, Idoxuridine, Acyclovir*, Foscarnet, Zidovudine, Ribavirin, Remdesivir, Favipiravir ● **Antimalarials:** Quinine Sulphate, Chloroquine Phosphate*, Primaquine Phosphate, Mefloquine*, Cycloguanil, Pyrimethamine, Artemisinin ● **Sulfonamides:** Sulfanilamide, Sulfadiazine, Sulfametho xazole, Sulfacetamide*, Mafenide Acetate, Cotrimoxazole, Dapsone*	
12	**Antibiotics:** Penicillin G, Amoxicillin*, Cloxacillin, Streptomycin, ***Tetracyclines:*** Doxycycline, Minocycline, ***Macrolides:*** Erythromycin, Azithromycin, ***Miscellaneous:*** Chloramphenicol* Clindamycin	**8**
13	**Anti-Neoplastic Agents:** Cyclophosphamide*, Busulfan, Mercaptopurine, Fluorouracil*, Methotrexate, Dactinomycin, Doxorubicin Hydrochloride, Vinblastine Sulphate, Cisplatin*, Dromostanolone Propionate	**3**

PHARMACEUTICAL CHEMISTRY – PRACTICAL

Course Code: ER20-12P **75 Hours (3 Hours/week)**

Scope: This course is designed to impart basic training and hands-on experiences to synthesis chemical substances used as drugs and pharmaceuticals. Also, to perform the quality control tests, impurity testing, test for purity and systematic qualitative analysis of chemical substances used as drugs and pharmaceuticals.

Course Objectives: This course will provide the hands-on experience on the following aspects of chemical substances used as drugs and pharmaceuticals

1. Limit tests and assays of selected chemical substances as per the monograph
2. Volumetric analysis of the chemical substances
3. Basics of preparatory chemistry and their analysis
4. Systematic qualitative analysis for the identification of the chemical drugs

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

1. Perform the limit tests for various inorganic elements and report
2. Prepare standard solutions using the principles of volumetric analysis
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, 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 iodometry ● Ibuprofen by alkalimetry
5	**Fundamentals of preparative organic chemistry** Determination of Melting point and boiling point of organic compounds
6	**Preparation of organic compounds** • Benzoic acid from Benzamide • Picric acid from Phenol
7	**Identification and test for purity of pharmaceuticals** Aspirin, Caffeine, Paracetamol, Sulfanilamide
8	Systematic Qualitative analysis experiments (4 substances)

Assignments

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

1. Different monographs and formularies available and their major contents
2. Significance of quality control and quality assurance in pharmaceutical industries
3. Overview on Green Chemistry
4. Various software programs available for computer aided drug discovery
5. Various instrumentations used for characterization and quantification of drug

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 ● Evaluation of crude drugs	**6**

<table>
<tr><td>4</td><td colspan="2">Brief outline of occurrence, distribution, isolation, identification tests, therapeutic activity and pharmaceutical applications of alkaloids, terpenoids, glycosides, volatile oils, tannins and resins.</td><td>6</td></tr>
<tr><td rowspan="18">5</td><td colspan="2">Biological source, chemical constituents and therapeutic efficacy of the following categories of crude drugs.</td><td rowspan="18">30</td></tr>
<tr><td>Laxatives</td><td>Aloe, Castor oil, Ispaghula, Senna</td></tr>
<tr><td>Cardiotonic</td><td>Digitalis, Arjuna</td></tr>
<tr><td>Carminatives and G.I. regulators</td><td>Coriander, Fennel, Cardamom, Ginger, Clove, Black Pepper, Asafoetida, Nutmeg, Cinnamon</td></tr>
<tr><td>Astringents</td><td>Myrobalan, Black Catechu, Pale Catechu</td></tr>
<tr><td>Drugs acting on nervous system</td><td>Hyoscyamus, Belladonna, Ephedra, Opium, Tea leaves, Coffee seeds, Coca</td></tr>
<tr><td>Anti-hypertensive</td><td>Rauwolfia</td></tr>
<tr><td>Anti-tussive</td><td>Vasaka, Tolu Balsam</td></tr>
<tr><td>Anti-rheumatics</td><td>Colchicum seed</td></tr>
<tr><td>Anti-tumour</td><td>Vinca, Podophyllum</td></tr>
<tr><td>Antidiabetics</td><td>Pterocarpus, Gymnema</td></tr>
<tr><td>Diuretics</td><td>Gokhru, Punarnava</td></tr>
<tr><td>Anti-dysenteric</td><td>Ipecacuanha</td></tr>
<tr><td>Antiseptics and disinfectants</td><td>Benzoin, Myrrh, Neem, Turmeric</td></tr>
<tr><td>Antimalarials</td><td>Cinchona, Artemisia</td></tr>
<tr><td>Oxytocic</td><td>Ergot</td></tr>
<tr><td>Vitamins</td><td>Cod liver oil, Shark liver oil</td></tr>
<tr><td>Enzymes</td><td>Papaya, Diastase, Pancreatin, Yeast</td></tr>
<tr><td>Pharmaceutical Aids</td><td>Kaolin, Lanolin, Beeswax, Acacia, Tragacanth, Sodium alginate, Agar, Guar gum, Gelatine</td></tr>
<tr><td>Miscellaneous</td><td>Squill, Galls, Ashwagandha, Tulsi, Guggul</td></tr>
<tr><td>6</td><td colspan="2">Plant fibres used as surgical dressings: Cotton, silk, wool and regenerated fibres
Sutures – Surgical Catgut and Ligatures</td><td>3</td></tr>
<tr><td>7</td><td colspan="2">● Basic principles involved in the traditional systems of medicine like: Ayurveda, Siddha, Unani and Homeopathy

● Method of preparation of Ayurvedic formulations like: Arista, Asava, Gutika, Taila, Churna, Lehya and Bhasma</td><td>8</td></tr>
</table>

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	Introduction to herbal formulations	**4**
11	**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**
12	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

1. Morphological Identification of the following drugs:
Ispaghula, Senna, Coriander, Fennel, Cardamom, Ginger, Nutmeg, Black Pepper, Cinnamon, Clove, Ephedra, Rauwolfia, Gokhru, Punarnava, Cinchona, Agar.

2. Gross anatomical studies (Transverse Section) of the following drugs:
Ajwain, Datura, Cinnamon, Cinchona, Coriander, Ashwagandha, Liquorice, Clove, Curcuma, Nux vomica, Vasaka

3. Physical and chemical tests for evaluation of any FIVE of the following drugs:
Asafoetida, Benzoin, Pale catechu, Black catechu, Castor oil, Acacia, Tragacanth, Agar, Guar gum, Gelatine.

Assignments

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

1. Market preparations of various dosage forms of Ayurvedic, Unani, Siddha, Homeopathic (Classical and Proprietary), indications, and their labelling requirements
2. Market preparations of various herbal formulations and herbal cosmetics, indications, and their labelling requirements
3. Herb-Drug interactions documented in the literature and their clinical significances

Field Visit

The students shall be taken in groups to a medicinal garden to witness and understand the nature of various medicinal plants discussed in theory and practical courses. Additionally, they shall be taken in groups to the pharmacies of traditional systems of medicines to understand the availability of various dosage forms and their labelling requirements. Individual reports from each student on their learning experience from the field visit shall be submitted.

HUMAN ANATOMY AND PHYSIOLOGY – THEORY

Course Code: ER20-14T **75 Hours (3 Hours/week)**

Scope: This course is designed to impart basic knowledge on the structure and functions of the human body. It helps in understanding both homeostasis mechanisms and homeostatic imbalances of various systems of the human body.

Course Objectives: This course will discuss the following:

1. Structure and functions of the various organ systems and organs of the human body
2. Homeostatic mechanisms and their imbalances in the human body
3. Various vital physiological parameters of the human body and their significances

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

1. Describe the various organ systems of the human body
2. Discuss the anatomical features of the important human organs and tissues
3. Explain the homeostatic mechanisms regulating the normal physiology in the human system
4. Discuss the significance of various vital physiological parameters of the human body

Chapter	Topic	Hours
1	Scope of Anatomy and Physiology Definition of various terminologies	**2**
2	**Structure of Cell**: Components and its functions	**2**
3	**Tissues of the human body**: Epithelial, Connective, Muscular and Nervous tissues – their sub-types and characteristics.	**4**
4	**Osseous system**: structure and functions of bones of axial and appendicular skeleton Classification, types and movements of joints, disorders of joints	**3** **3**
5	**Haemopoietic system** ● Composition and functions of blood ● Process of Hemopoiesis ● Characteristics and functions of RBCs, WBCs, and platelets ● Mechanism of Blood Clotting ● Importance of Blood groups	**8**

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, and Mechanism of respiration. ● Respiratory volumes and capacities – definitions	**4**
9	**Digestive system** ● Anatomy and Physiology of the 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 ● Nose	**6**
13	**Urinary system** ● Anatomy and physiology of urinary system ● Physiology of urine formation ● Renin - angiotensin system ● Clearance tests and micturition	**4**

14	**Endocrine system (Hormones and their functions)** ● Pituitary gland ● Adrenal gland ● Thyroid and parathyroid gland ● Pancreas and gonads	**6**
15	**Reproductive system** ● Anatomy of male and female reproductive system ● Physiology of menstruation ● Spermatogenesis and Oogenesis ● Pregnancy and parturition	**4**

HUMAN ANATOMY AND PHYSIOLOGY – PRACTICAL

Course Code: ER20-14P **75 Hours (3 Hours/week)**

Scope: This course is designed to train the students and instil the skills for carrying out basic physiological monitoring of various systems and functions.

Course Objectives: This course will provide hands-on experience in the following:

1. General blood collection techniques and carrying out various haematological assessments and interpreting the results
2. Recording and monitoring the vital physiological parameters in human subjects and the basic interpretations of the results
3. Microscopic examinations of the various tissues permanently mounted in glass slides
4. Discuss the anatomical and physiological characteristics of various organ systems of the body using models, charts, and other teaching aids

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

1. Perform the haematological tests in human subjects and interpret the results
2. Record, monitor and document the vital physiological parameters of human subjects and interpret the results
3. Describe the anatomical features of the important human tissues under the microscopical conditions
4. Discuss the significance of various anatomical and physiological characteristics of the human body

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. Determination of
    a. Blood group
    b. ESR
    c. Haemoglobin content of blood
    d. Bleeding time and Clotting time
6. Determination of WBC count of blood
7. Determination of RBC count of blood
8. Determination of Differential count of blood
9. Recording of Blood Pressure in various postures, different arms, before and after exertion and interpreting the results
10. 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
11. Recording Pulse Oxygen (before and after exertion)
12. Recording force of air expelled using Peak Flow Meter
13. Measurement of height, weight, and BMI
14. 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 **75 Hours (3 Hours/week)**

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 and health 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) • Public and Private Health System in India, National Health Mission (2) • Introduction to Millennium Development Goals, Sustainable Development Goals, FIP Development Goals (1)	9
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 (4)	18

	• Effect of Environment on Health – Water pollution, importance of safe drinking water, waterborne diseases, air pollution, noise pollution, sewage and solid waste disposal, occupational illnesses, Environmental pollution due to pharmaceuticals (7) • Psychosocial Pharmacy: Drugs of misuse and abuse – psychotropics, narcotics, alcohol, tobacco products. Social Impact of these habits on social health and productivity and suicidal behaviours (2)	
3	**Nutrition and Health** • Basics of nutrition – Macronutrients and Micronutrients (3) • Importance of water and fibres in diet (1) • Balanced diet, Malnutrition, nutrition deficiency diseases, ill effects of junk foods, calorific and nutritive values of various foods, fortification of food (3) • Introduction to food safety, adulteration of foods, effects of artificial ripening, use of pesticides, genetically modified foods (1) • Dietary supplements, nutraceuticals, food supplements – indications, benefits, Drug-Food Interactions (2)	**10**
4	Introduction to Microbiology and common microorganisms (3) **Epidemiology:** Introduction to epidemiology, and its applications. Understanding of terms such as epidemic, pandemic, endemic, mode of transmission, outbreak, quarantine, isolation, incubation period, contact tracing, morbidity, mortality, . (2) Causative agents, epidemiology and clinical presentations and Role of Pharmacists in educating the public in prevention of the following communicable diseases: • Respiratory infections – chickenpox, measles, rubella, mumps, influenza (including Avian-Flu, H1N1, SARS, MERS, COVID-19), diphtheria, whooping cough, meningococcal meningitis, acute respiratory infections, tuberculosis, Ebola (7) • Intestinal infections – poliomyelitis, viral hepatitis, cholera, acute diarrheal diseases, typhoid, amebiasis, worm infestations, food poisoning (7)	**28**

	• Arthropod-borne infections - dengue, malaria, filariasis and, chikungunya (4) • Surface infections – trachoma, tetanus, leprosy (2) • 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.	**8**
6	**Pharmacoeconomics** – Introduction, basic terminologies, importance of pharmacoeconomics	**~~2~~**

SOCIAL PHARMACY – PRACTICAL

Course Code: ER20-15P **75 Hours (3 Hours/week)**

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

Note: Demonstration / Hands-on experience / preparation of charts / models / promotional materials / role plays / enacting / e-brochures / e-flyers / podcasts / video podcasts / any other innovative activities to understand the concept of various elements of social pharmacy listed here. (At least one activity to be carried out for each one of the following):

Practicals

1. National immunization schedule for children, adult vaccine schedule, Vaccines which are not included in the National Immunization Program.
2. RCH – reproductive and child health – nutritional aspects, relevant national health programmes.
3. Family planning devices
4. Microscopical observation of different microbes (readymade slides)
5. Oral Health and Hygiene
6. Personal hygiene and etiquettes – hand washing techniques, Cough and sneeze etiquettes.
7. Various types of masks, PPE gear, wearing/using them, and disposal.
8. Menstrual hygiene, products used
9. First Aid – Theory, basics, demonstration, hands on training, audio-visuals, and practice, BSL (Basic Life Support) Systems [SCA - Sudden Cardiac Arrest, FBAO - Foreign Body Airway Obstruction, CPR, Defibrillation (using AED) (Includes CPR techniques, First Responder).
10. Emergency treatment for all medical emergency cases viz. snake bite, dog bite, insecticide poisoning, fractures, burns, epilepsy etc.
11. Role of Pharmacist in Disaster Management.
12. Marketed preparations of disinfectants, antiseptics, fumigating agents, antilarval agents, mosquito repellents, etc.
13. Health Communication: Audio / Video podcasts, Images, Power Point Slides, Short Films, etc. in regional language(s) for mass communication / education / Awareness on 5 different communicable diseases, their signs and symptoms, and prevention.
14. Water purification techniques, use of water testing kit, calculation of Content/percentage of $KMnO_4$, bleaching powder to be used for wells/tanks
15. Counselling children on junk foods, balanced diets – using Information, Education and Communication (IEC), counselling, etc. (Simulation Experiments).
16. Preparation of various charts on nutrition, sources of various nutrients from Locally available foods, calculation of caloric needs of different groups (e.g. child, mother, sedentary lifestyle, etc.). Chart of glycemic index of foods.
17. Tobacco cessation, counselling, identifying various tobacco containing products through charts/pictures

Assignment

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

1. An overview of Women's Health Issues
2. Study the labels of various packed foods to understand their nutritional contents
3. Breastfeeding counselling, guidance – using Information, Education and Communication (IEC)
4. Information about the organizations working on de-addiction services in the region (city / district, etc.)
5. Role of a pharmacist in disaster management – A case study
6. Overview on the National Tuberculosis Elimination Programme (NTEP)
7. Drug disposal systems in the country, at industry level and citizen level
8. Various Prebiotics or Probiotics (dietary and market products)
9. Emergency preparedness: Study of local Government structure with respect to Fire, Police departments, health department
10. Prepare poster/presentation for general public on any one of the Health Days. e.g. Day, AIDS Day, Handwashing Day, ORS day, World Diabetes Day, World Heart Day, etc.
11. List of home medicines, their storage, safe handling, and disposal of unused medicines
12. Responsible Use of Medicines: From Purchase to Disposal
13. 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
14. Read a minimum of one article relevant to any theory topic, from Pharma /Science/ or other Periodicals and prepare summary of it for submission
15. 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

8. ER-2020 D. Pharm Syllabus – Part II

Sr. No.	Course code	Name of the Course	Total Theory / Practical Hours	Total Tutorial Hours	Theory / Practical Hours per Week	Tutorial Hours per Week
1.	ER20-21T	Pharmacology – Theory	75	25	3	1
2.	ER20-21P	Pharmacology – Practical	50	-	2	-
3.	ER20-22T	Community Pharmacy & Management – Theory	75	25	3	1
4.	ER20-22P	Community Pharmacy & Management – Practical	75	-	3	-
5.	ER20-23T	Biochemistry & Clinical Pathology –Theory	75	25	3	1
6.	ER20-23P	Biochemistry & Clinical Pathology –Practical	50	-	2	-
7.	ER20-24T	Pharmacotherapeutics – Theory	75	25	3	1
8	ER20-24P	Pharmacotherapeutics – Practical	25	-	1	-
9	ER20-25T	Hospital & Clinical Pharmacy – Theory	75	25	3	1
10	ER20-25P	Hospital & Clinical Pharmacy – Practical	25	-	1	-
11	ER20-26T	Pharmacy Law & Ethics	75	25	3	1
12	DP-UHV	Universal Human Values and Professional Ethics	30	-	3	-

MGM SCHOOL OF PHARMACY Navi Mumbai

Principal
MGM School of Pharmacy
Navi Mumbai

PHARMACOLOGY – THEORY

Course Code: ER20-21T **75 Hours (3 Hours/week)**

Scope: This course provides basic knowledge about different classes of drugs available for the pharmacotherapy of common diseases. The indications for use, dosage regimen, routes of administration, pharmacokinetics, pharmacodynamics, and contraindications of the drugs discussed in this course are vital for successful professional practice.

Course Objectives: This course will discuss the following:

1. General concepts of pharmacology including pharmacokinetics, pharmacodynamics, routes of administration, etc.
2. Pharmacological classification and indications of drugs
3. Dosage regimen, mechanisms of action, contraindications of drugs
4. Common adverse effects of drugs

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

1. Describe the basic concepts of pharmacokinetics and pharmacodynamics2. Enlist the various classes and drugs of choices for any given disease condition
3. Advice the dosage regimen, route of administration and contraindications for a given drug
4. Describe the common adverse drug reactions

Chapter	Topic	Hours
1	**General Pharmacology** • Introduction and scope of Pharmacology • Various routes of drug administration - advantages and disadvantages • Drug absorption - definition, types, factors affecting drug absorption • Bioavailability and the factors affecting bioavailability • Drug distribution - definition, factors affecting drug distribution • Biotransformation of drugs - Definition, types of biotransformation reactions, factors influencing drug metabolisms • Excretion of drugs - Definition, routes of drug excretion • General mechanisms of drug action and factors modifying drug action	10

2	**Drugs Acting on the Peripheral Nervous System** • Steps involved in neurohumoral transmission • Definition, classification, pharmacological actions, dose, indications, and contraindications of a) Cholinergic drugs b) Anti-Cholinergic drugs c) Adrenergic drugs d) Anti-adrenergic drugs e) Neuromuscular blocking agents f) Drugs used in Myasthenia gravis g) Local anaesthetic agents h) Non-Steroidal Anti-Inflammatory drugs (NSAIDs)	**11**
3	**Drugs Acting on the Eye** Definition, classification, pharmacological actions, dose, indications and contraindications of • Miotics • Mydriatics • Drugs used in Glaucoma	**2**
4	**Drugs Acting on the Central Nervous System** Definition, classification, pharmacological actions, dose, indications, and contraindications of • General anaesthetics • Hypnotics and sedatives • Anti-Convulsant drugs • Anti-anxiety drugs • Anti-depressant drugs • Anti-psychotics • Nootropic agents • Centrally acting muscle relaxants • Opioid analgesics	**8**
5	**Drugs Acting on the Cardiovascular System** Definition, classification, pharmacological actions, dose, indications, and contraindications of • Anti-hypertensive drugs • Anti-anginal drugs • Anti-arrhythmic drugs • Drugs used in atherosclerosis and • Congestive heart failure • Drug therapy for shock	**6**

6	**Drugs Acting on Blood and Blood Forming Organs** Definition, classification, pharmacological actions, dose, indications, and contraindications of • Hematinic agents • Anti-coagulants • Anti-platelet agents • Thrombolytic drugs	**4**
7	Definition, classification, pharmacological actions, dose, indications, and contraindications of • Bronchodilators • Expectorants • Anti-tussive agents • Mucolytic agents	**2**
8	**Drugs Acting on the Gastro Intestinal Tract** Definition, classification, pharmacological actions, dose, indications, and contraindications of • Anti-ulcer drugs • Anti-emetics • Laxatives and purgatives • Anti-diarrheal drugs	**5**
9	**Drugs Acting on the Kidney** Definition, classification, pharmacological actions, dose, indications, and contraindications of • Diuretics • Anti-Diuretics	**2**
10	**Hormones and Hormone Antagonists** Physiological and pathological role and clinical uses of • Thyroid hormones • Anti-thyroid drugs • Parathormone • Calcitonin • Vitamin D • Insulin • Oral hypoglycemic agents • Estrogen • Progesterone • Oxytocin • Corticosteroids	**8**

11	**Autocoids** • Physiological role of Histamine, 5 HT and Prostaglandins • Classification, clinical uses, and adverse effects of antihistamines and 5 HT antagonists	**3**
12	**Chemotherapeutic Agents:** Introduction, basic principles of chemotherapy of infections, infestations and neoplastic diseases, Classification, dose, indication and contraindications of drugs belonging to following classes: • Penicillins • Cephalosporins • Aminoglycosides • Fluoroquinolones • Macrolides • Tetracyclines • Sulphonamides • Anti-tubercular drugs • Anti-fungal drugs • Anti-viral drugs • Anti-amoebic agents • Anthelmintics • Anti-malarial agents • Anti-neoplastic agents	**12**
13	**Biologicals** Definition, types, and indications of biological agents with examples	**2**

PHARMACOLOGY – PRACTICAL

Course Code: ER20-21P **50 Hours (2 Hours/week)**

Scope: This course provides the basic understanding about the uses, mechanisms of actions, dose dependent responses of drugs in simulated virtual animal models and experimental conditions.

Course Objectives: This course will demonstrate / provide hands-on experience in the virtual platform using appropriate software on the following

1. Study of pharmacological effects of drugs like local anaesthetics, mydriatic and mitotic on rabbit eye
2. Screening the effects of various drugs acting in the central nervous system
3. Study of drug effects on isolated organs / tissues
4. Study of pyrogen testing on rabbit

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

1. Study and report the local anaesthetic, mydriatic and mitotic effects of the given drug on the rabbit eye
2. Choose appropriate animal experiment model to study the effects of the given drugs acting on the central nervous system and submit the report
3. Perform the effects of given tissues (simulated) on isolated organs / tissues and interpret the results
4. Interpret the dose dependent responses of drugs in various animal experiment models

Practicals

Introduction to the following topics pertaining to the experimental pharmacology have to be discussed and documented in the practical manuals.

1. Introduction to experimental pharmacology
2. Study of laboratory animals
   (a) Mice; (b) Rats; (c) Guinea pigs; (d) Rabbits
3. Commonly used instruments in experimental pharmacology
4. Different routes of administration of drugs in animals
5. Types of pre-clinical experiments: In-Vivo, In-Vitro, Ex-Vivo, etc.
6. Techniques of blood collection from animals

Experiments

Note: Animals shall not be used for doing / demonstrating any of the experiments given. The given experiments shall be carried out / demonstrated as the case may be, ONLY with the use of software program(s) such as 'Ex Pharm' or any other suitable software

1. Study of local anaesthetics on rabbit eye
2. Study of Mydriatic effect on rabbit eye
3. Study of Miotic effect on rabbit eye
4. Effect of analgesics using Analgesiometer
5. Study of analgesic activity by writhing test
6. Screening of anti-convulsant using Electro Convulsiometer
7. Screening of Muscle relaxants using Rota-Rod apparatus
8. Screening of CNS stimulants and depressants using Actophotometer
9. Study of anxiolytic activity using elevated plus maze method
10. Study of effect of drugs (any 2) on isolated heart
11. Effect of drugs on ciliary motility on frog's buccal cavity
12. Pyrogen testing by rabbit method

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. Introduction to Allergy Testing
2. Introduction to Toxicity Studies
3. Drug Facts Labels of US FDA
4. Pre-clinical studies in new drug development
5. Medicines and meals: Before or After food
6. Pre-clinical studies in new drug development
7. Drugs available as paediatric formulations
8. Drug information apps

COMMUNITY PHARMACY AND MANAGEMENT – THEORY

Course Code: ER20-22T **75 Hours (3 Hours/week)**

Scope: The course is designed to impart basic knowledge and skills to provide various pharmaceutical care services to patients and general practitioners in the community setup.

Course Objectives: This course will discuss the following:

1. Establishing and running a community pharmacy and its legal requirements
2. Professional aspects of handling and filling prescriptions
3. Patient counselling on diseases, prescription and or non-prescription medicines
4. Scope for performing basic health screening in community pharmacy settings

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

1. Describe the establishment, legal requirements, and effective administration of a community pharmacy
2. Professionally handle prescriptions and dispense medications
3. Counsel patients about the disease, prescription and or non-prescription medicines
4. Perform basic health screening on patients and interpret the reports in the community pharmacy settings

Chapter	Topic	Hours
1	**Community Pharmacy Practice** – Definition, history and development of community pharmacy - International and Indian scenarios	2
2	Professional responsibilities of community pharmacists Introduction to the concept of Good Pharmacy Practice and SOPs.	3
3	**Prescription and prescription handling** • Definition, parts of prescriptions, legality of prescriptions, prescription handling, labelling of dispensed medications (Main label, ancillary label, pictograms), brief instructions on medication usage • Dispensing process, Good Dispensing Practices, dispensing errors and strategies to minimize them	7

4	**Communication skills** • Definition, types of communication skills • Interactions with professionals and patients • Verbal communication skills (one-to-one, over the telephone) • Written communication skills • Body language • Patient interview techniques	**6**
5	**Patient counselling** • Definition and benefits of patient counselling • **Stages of patient counselling** - Introduction, counselling content, counselling process, and closing the counselling session • **Barriers to effective counseling** - Types and strategies to overcome the barriers • **Patient counselling points for chronic diseases/disorders** - Hypertension, Diabetes, Asthma, Tuberculosis, Chronic obstructive pulmonary disease, and AIDS • **Patient Package Inserts** - Definition, importance and benefits, Scenarios of PPI use in India and other countries • **Patient Information leaflets** - Definition and uses	**10**
6	**Medication Adherence** Definition, factors influencing non-adherence, strategies to overcome non-adherence	**2**
7	**Health Screening Services in Community Pharmacy** Introduction, scope, and importance of various health screening services - for routine monitoring of patients, early detection, and referral of undiagnosed cases	**5**
9	**Over The Counter (OTC) Medications** • Definition, need and role of Pharmacists in OTC medication dispensing • OTC medications in India, counseling for OTC products • Self-medication and role of pharmacists in promoting the safe practices during self-medication • Responding to symptoms, minor ailments, and advice for self-care in conditions such as - Pain management, Cough, Cold, Diarrhea, Constipation, Vomiting, Fever, Sore throat, Skin disorders, Oral health (mouth ulcers, dental pain, gum swelling)	**15**

10	**Community Pharmacy Management** • Legal requirements to set up a community pharmacy • Site selection requirements • Pharmacy designs and interiors • Vendor selection and ordering • Procurement, inventory control methods, and inventory management • Financial planning and management • Accountancy in community pharmacy – Day book, Cash book • Introduction to pharmacy operation softwares – usefulness and availability • Customer Relation Management (CRM) • Audits in Pharmacies • SOP of Pharmacy Management • Introduction to Digital Health, mHealth and Online pharmacies	**25**

COMMUNITY PHARMACY AND MANAGEMENT – PRACTICAL

Course Code: ER20-22P **75 Hours (3 Hours/week)**

Scope: The course is designed to train the students and improve professional skills to provide various pharmaceuticalcare services in community pharmacy.

Course Objectives: This course will train the students in the following

1. Professional handling and filling prescriptions
2. Patient counselling on diseases and minor ailments
3. Patient counselling on prescription and / or non-prescription medicines
4. Preparation of counselling materials such as patient information leaflets
5. Performing basic health screening tests

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

1. Handle and fill prescriptions in a professional manner
2. Counsel patients on various diseases and minor ailments
3. Counsel patients on prescription and or non-prescription medicines
4. Design and prepare patient information leaflets
5. Perform basic health screening tests

Practicals

Note: The following practicals shall be carried out in the model community pharmacy with appropriate simulated scenarios and materials. Students shall be trained through role plays wherever necessary. The activities of the students shall be assessed / evaluated using a structured objective assessment form.

1. Handling of prescriptions with professional standards, reviewing prescriptions, checking for legal compliance and completeness (minimum 5)
2. Identification of drug-drug interactions in the prescription and follow-up actions (minimum 2)
3. Preparation of dispensing labels and auxiliary labels for the prescribed medications (minimum 5)
4. Providing the following health screening services for monitoring patients / detecting new patients (one experiment for each activity)

   Blood Pressure Recording, Capillary Blood Glucose Monitoring, Lung function assessment using Peak Flow Meter and incentive spirometer, recording capillary oxygen level using Pulse Oximeter, BMI measurement
5. Providing counselling to simulated patients for the following chronic diseases / disorders including education on the use of devices such as insulin pen, inhalers, spacers, nebulizers, etc. where appropriate (one experiment for each disease)

   Type 2 Diabetes Mellitus, Primary Hypertension, Asthma, Hyperlipidaemia, Rheumatoid Arthritis
6. Providing counselling to simulated patients for the following minor ailments (any three)

   Headache, GI disturbances (Nausea, Vomiting, Dyspepsia, diarrhoea, constipation), Worm infestations, Pyrexia, Upper Respiratory Tract infections, Skin infections, Oral and dental disorders.
7. Appropriate handling of dummy dosage forms with correct administration techniques - oral liquids with measuring cup/cap/dropper, Eye Drops, Inhalers, Nasal drops, Insulin pen, nebulizers, different types of tablets, patches, enemas, suppositories
8. Use of Community Pharmacy Software and digital health tools

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. SOPs for various activities in Community Pharmacy (as discussed in Theory and Practical)

2. List out the various abbreviations, short forms used in prescriptions and their interpretation
3. Patient Information Leaflet for a given chronic disease / disorder
4. Patient Information Leaflet for prescription / non-prescription medicines
5. Preparation of window / shelf display materials for the model community pharmacy
6. Overview of Software available for retail pharmacy management including billing, inventory, etc.
7. Dosage / Medication Reminder Aids
8. Overview on the operations and marketing strategies of various online pharmacies
9. Overview on the common fixed dose combinations
10. Overview on the medications requiring special storage conditions
11. Role of Community Pharmacists in preventing Antimicrobial Resistance
12. Jan Aushadhi and other Generic Medicine initiatives in India
13. Global Overview of Online Pharmacies
14. Community Pharmacy Practice Standards: Global Vs. Indian Scenario
15. Overview of pharmacy associations in India

Field Visit

The students shall be taken in groups to visit community pharmacies and medicine distributors to understand and witness the professional activities of the community pharmacists, and supply chain logistics. Individual reports from each student on their learning experience from the field visit shall be submitted.

BIOCHEMISTRY & CLINICAL PATHOLOGY – THEORY

Course Code: ER20-23T **75 Hours (3 Hours/week)**

Scope: This course is designed to impart basic knowledge on the study of structure and functions of biomolecules and the chemical processes associated with living cells in normal and abnormal states. The course also emphasizes on the clinical pathology of blood and urine.

Course Objectives: This course will discuss the following at the fundamental level

1. Structure and functions of biomolecules
2. Catalytic activity, diagnostic and therapeutic importance of enzymes
3. Metabolic pathways of biomolecules in health and illness (metabolic disorders)
4. Biochemical principles of organ function tests and their clinical significance
5. Qualitative and quantitative determination of biomolecules / metabolites in the biological sample
6. Clinical pathology of blood and urine

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

1. Describe the functions of biomolecules
2. Discuss the various functions of enzymes in the human system
3. Explain the metabolic pathways of biomolecules in both physiological and pathological conditions
4. Describe the principles of organ function tests and their clinical significances
5. Determine the biomolecules / metabolites in the given biological samples, both qualitatively and quantitatively
6. Describe the clinical pathology of blood and urine

Chapter	Topic	Hours
1	**Introduction to biochemistry**: Scope of biochemistry in pharmacy; Cell and its biochemical organization.	2
2	**Carbohydrates** • Definition, classification with examples, chemical properties • Monosaccharides - Structure of glucose, fructose, and galactose • Disaccharides - structure of maltose, lactose, and sucrose • Polysaccharides - chemical nature of starch and glycogen • Qualitative tests and biological role of carbohydrates	5

3	**Proteins** • Definition, classification of proteins based on composition and solubility with examples • Definition, classification of amino acids based on chemical nature and nutritional requirements with examples • Structure of proteins (four levels of organization of protein structure) • Qualitative tests and biological role of proteins and amino acids • Diseases related to malnutrition of proteins.	**5**
4	**Lipids** • Definition, classification with examples • Structure and properties of triglycerides (oils and fats) • Fatty acid classification - Based on chemical and nutritional requirements with examples • Structure and functions of cholesterol in the body • Lipoproteins - types, composition and functions in the body • Qualitative tests and functions of lipids	**5**
5	**Nucleic acids** • Definition, purine and pyrimidine bases • Components of nucleosides and nucleotides with examples • Structure of DNA (Watson and Crick model), RNA and their functions	**4**
6	**Enzymes** • Definition, properties and IUB and MB classification • Factors affecting enzyme activity • Mechanism of action of enzymes, Enzyme inhibitors • Therapeutic and pharmaceutical importance of enzymes	**5**
7	**Vitamins** • Definition and classification with examples • Sources, chemical nature, functions, coenzyme form, recommended dietary requirements, deficiency diseases of fat-and water-soluble vitamins	**6**
8	**Metabolism** (Study of cycle/pathways without chemical structures) • Metabolism of Carbohydrates: Glycolysis, TCA cycle and glycogen metabolism, regulation of blood glucose	**20**

	level. Diseases related to abnormal metabolism of Carbohydrates • Metabolism of lipids: Lipolysis, β-oxidation of Fatty acid (Palmitic acid) ketogenesis and ketolysis. Diseases related to abnormal metabolism of lipids such as Ketoacidosis, Fatty liver, Hypercholesterolemia • Metabolism of Amino acids (Proteins): General reactions of amino acids and its significance– Transamination, deamination, Urea cycle and decarboxylation. Diseases related to abnormal metabolism of amino acids, Disorders of ammonia metabolism, phenylketonuria, alkaptonuria and Jaundice. • Biological oxidation: Electron transport chain and Oxidative phosphorylation	
9	**Minerals**: Types, Functions, Deficiency diseases, recommended dietary requirements	**05**
10	**Water and Electrolytes** • Distribution, functions of water in the body • Water turnover and balance • Electrolyte composition of the body fluids, Dietary intake of electrolyte and Electrolyte balance • Dehydration, causes of dehydration and oral rehydration therapy	**05**
11	Introduction to Biotechnology	**01**
12	**Organ function tests** • Functions of kidney and routinely performed tests to assess the functions of kidney and their clinical significances • Functions of liver and routinely performed tests to assess the functions of liver and their clinical significances • Lipid profile tests and its clinical significances	**06**
13	**Introduction to Pathology of Blood and Urine** • Lymphocytes and Platelets, their role in health and disease • Erythrocytes - Abnormal cells and their significance • Normal and Abnormal constituents of Urine and their significance	**06**

BIOCHEMISTRY & CLINICAL PATHOLOGY – PRACTICAL

Course Code: ER20-23P **50 Hours (2 Hours/week)**

Scope: This course is designed to train the students in the qualitative testing of various biomolecules and testing of biological samples for determination of normal and abnormal constituents

Course Objectives: This course will train and provide hands-on experiences on the following

1. Qualitative determination of biomolecules / metabolites in simulated biological samples
2. Determination of normal and abnormal constituents of simulated blood and urine samples

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

1. Qualitatively determine the biomolecules / metabolites in the given biological samples
2. Determine the normal and abnormal constituents in blood and urine samples and interpret the results of such testing

Practicals

1. Qualitative analysis of carbohydrates (4 experiments)
2. Qualitative analysis of Proteins and amino acids (4 experiments)
3. Qualitative analysis of lipids (2 experiments)
4. Qualitative analysis of urine for normal and abnormal constituents (4 experiments)
5. Determination of constituents of urine (glucose, creatinine, chlorides) (2 experiments)
6. Determination of constituents of blood/serum (simulated) (Creatine, glucose, cholesterol, Calcium, Urea, SGOT/SGPT) (5 experiments)
7. Study the hydrolysis of starch from acid and salivary amylase enzyme (1 experiment)

Assignments

The students shall be asked to submit written assignments on Various Pathology Lab Reports (One assignment per student per sessional period. i.e., a minimum of THREE assignments per student)

PHARMACOTHERAPEUTICS - THEORY

Course Code: ER20-24T **75 Hours (3 Hours/week)**

Scope: This course is designed to impart basic knowledge on etiopathogenesis of common diseases and their management along with quality use of medicines.

Course Objectives: This course will discuss about

1. Etiopathogenesis of selected common diseases and evidence-based medicine therapy
2. Importance of individualized therapeutic plans based on diagnosis
3. Basic methods for assessing the clinical outcomes of drug therapy

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

1. Help assessing the subjective and objective parameters of patients in common disease conditions
2. Assist other healthcare providers to analyse drug related problems and provide therapeutic interventions
3. Participate in planning the rational medicine therapy for common diseases
4. Design and deliver discharge counselling for patients

Chapter	Topic	Hours
1	Pharmacotherapeutics – Introduction, scope, and objectives. Rational use of Medicines, Evidence Based Medicine, Essential Medicines List, Standard Treatment Guidelines (STGs)	**8**
2	**Definition, etiopathogenesis, clinical manifestations, non-pharmacological and pharmacological management of the diseases associated with**	
	(a) Cardiovascular System • Hypertension • Angina and Myocardial infarction • Hyperlipidaemia • Congestive Heart Failure	**8**
	(b) Respiratory System • Asthma • COPD	**4**
	(c) Endocrine System • Diabetes • Thyroid disorders - Hypo and Hyperthyroidism	**5**
	(d) Central Nervous System • Epilepsy	**8**

	• Parkinson's disease • Alzheimer's disease • Stroke • Migraine	
	(e) Gastro Intestinal Disorders • Gastro oesophageal reflux disease • Peptic Ulcer Disease • Alcoholic liver disease • Inflammatory Bowel Diseases (Crohn's Disease and Ulcerative Colitis)	**8**
	(f) Haematological disorders • Iron deficiency anaemia • Megaloblastic anaemia	**4**
	(g) Infectious diseases • Tuberculosis • Pneumonia • Urinary tract infections • Hepatitis • Gonorrhoea and Syphilis • Malaria • HIV and Opportunistic infections • Viral Infections (SARS, CoV2)	**12**
	(h) Musculoskeletal disorders • Rheumatoid arthritis • Osteoarthritis	**3**
	(i) Dermatology • Psoriasis • Scabies • Eczema	**3**
	(j) Psychiatric Disorders • Depression • Anxiety • Psychosis	**4**
	(k) Ophthalmology • Conjunctivitis (bacterial and viral) • Glaucoma	**2**
	(l) Anti-microbial Resistance	**2**
	(m) Women's Health • Polycystic Ovary Syndrome • Dysmenorrhea • Premenstrual Syndrome	**4**

PHARMACOTHERAPEUTICS – PRACTICAL

Course Code: ER20-24P **25 Hours (1 Hour/week)**

Scope: This course is designed to train the students in the basic skills required to support the pharmaceutical care services for selected common disease conditions.

Course Objectives: This course will train the students on

1. How to prepare a SOAP (Subjective, Objective, Assessment and Plan) note for clinical cases of selected common diseases
2. Patient counselling techniques/methods for common disease conditions

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

1. Write SOAP (Subjective, Objective, Assessment and Plan) notes for the given clinical cases of selected common diseases
2. Counsel the patients about the disease conditions, uses of drugs, methods of handling and administration of drugs, life-style modifications, and monitoring parameters.

Practicals

I. Preparation and discussion of SOAP (Subjective, Objective, Assessment and Plan) notes for at least SIX clinical cases (real / hypothetical) of the following disease conditions.

1. Hypertension
2. Angina Pectoris
3. Myocardial Infarction
4. Hyperlipidaemia
5. Rheumatoid arthritis
6. Asthma
7. COPD
8. Diabetes
9. Epilepsy
10. Stroke
11. Depression
12. Tuberculosis
13. Anaemia (any one type as covered in theory)
14. Viral infection (any one type as covered in theory)
15. Dermatological conditions (any one condition as covered in theory)

II. Patient counselling exercises using role plays based on the real / hypothetical clinical case scenarios. The students are expected to provide counselling on disease condition, medications, life-style modifications, monitoring parameters, etc. and the same shall be documented. (Minimum 5 cases)

III. Simulated cases to enable dose calculation of selected drugs in paediatrics, and geriatrics under various pathological conditions. (Minimum 4 cases)

HOSPITAL AND CLINICAL PHARMACY – THEORY

Course Code: ER20-25T **75 Hours (3 Hours/week)**

Scope: This course is designed to impart fundamental knowledge and professional skills required for facilitating various hospital and clinical pharmacy services.

Course Objectives: This course will discuss and train the students in the following

1. Hospital and Hospital Pharmacy organization and set-ups
2. Basics of hospital pharmacy services including the procurement, supply chain, storage of medicines and medical supplies
3. Basics of clinical pharmacy including introduction to comprehensive pharmaceutical care services
4. Basic interpretations of common laboratory results used in clinical diagnosis towards optimizing the drug therapy

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

1. Explain about the basic concepts of hospital pharmacy administration
2. Manage the supply chain and distribution of medicines within the hospital settings
3. Assist the other healthcare providers in monitoring drug therapy and address drug related problems
4. Interpret common lab investigation reports for optimizing drug therapy

S. No.	Topic	Hours
1	**Hospital Pharmacy** • Definition, scope, national and international scenario • Organisational structure • Professional responsibilities, Qualification and experience requirements, job specifications, work–load requirements and inter professional relationships • Good Pharmacy Practice (GPP) in hospital • Hospital Pharmacy Standards (FIP Basel Statements, AHSP) • Introduction to NAQS guidelines and NABH Accreditation and Role of Pharmacists	6
2	**Different Committees in the Hospital** • Pharmacy and Therapeutics Committee - Objectives, Composition, and functions • Hospital Formulary - Definition, procedure for development and use of hospital formulary	4

	• Infection Control Committee – Role of Pharmacist in preventing Antimicrobial Resistance	
4	**Supply Chain and Inventory Control** • Preparation of Drug lists - High Risk drugs, Emergency drugs, Schedule H1 drugs, NDPS drugs, reserved antibiotics • Procedures of Drug Purchases – Drug selection, short term, long term, and tender/e-tender process, quotations, etc. • Inventory control techniques: Economic Order Quantity, Reorder Quantity Level, Inventory Turnover etc. • Inventory Management of Central Drug Store – Storage conditions, Methods of storage, Distribution, Maintaining Cold Chain, Devices used for cold storage (Refrigerator, ILR, Walk-in-Cold rooms) • FEFO, FIFO methods • Expiry drug removal and handling, and disposal. Disposal of Narcotics, cytotoxic drugs • Documentation - purchase and inventory	**14**
5	**Drug distribution** • Drug distribution (in- patients and out - patients) – Definition, advantages and disadvantages of individual prescription order method, Floor Stock Method, Unit Dose Drug Distribution Method, Drug Basket Method. • Distribution of drugs to ICCU/ICU/NICU/Emergency wards. • Automated drug dispensing systems and devices • Distribution of Narcotic and Psychotropic substances and their storage	**7**
6	Compounding in Hospitals. Bulk compounding, IV admixture services and incompatibilities, Total parenteral nutrition	**4**
7	**Radio Pharmaceuticals -** Storage, dispensing and disposal of radiopharmaceuticals	**2**
8	Application of computers in Hospital Pharmacy Practice, Electronic health records, Softwares used in hospital pharmacy	**2**
9	**Clinical Pharmacy:** Definition, scope, and development - in India and other countries Technical definitions, common terminologies used in clinical settings and their significance such as Paediatrics, Geriatric, Anti-natal Care, Post-natal Care, etc.	**12**

	Daily activities of clinical pharmacists: Definition, goal, and procedure of • Ward round participation • Treatment Chart Review • Adverse drug reaction monitoring • Drug information and poisons information • Medication history • Patient counselling • Interprofessional collaboration **Pharmaceutical care**: Definition, classification of drug related problems. Principles and procedure to provide pharmaceutical care **Medication Therapy Management, Home Medication Review**	
10	**Clinical laboratory tests used in the evaluation of disease states - significance and interpretation of test results** • Haematological, Liver function, Renal function, thyroid function tests • Tests associated with cardiac disorders • Fluid and electrolyte balance • Pulmonary Function Tests	**10**
11	**Poisoning**: Types of poisoning: Clinical manifestations and Antidotes **Drugs and Poison Information Centre and their services** – Definition, Requirements, Information resources with examples, and their advantages and disadvantages	**6**
12	**Pharmacovigilance** • Definition, aim and scope • Overview of Pharmacovigilance	**2**
13	**Medication errors**: Definition, types, consequences, and strategies to minimize medication errors, LASA drugs and Tallman lettering as per ISMP **Drug Interactions:** Definition, types, clinical significance of drug interactions	**6**

HOSPITAL AND CLINICAL PHARMACY – PRACTICAL

Course Code: ER20-25P **25 Hours (1 Hour / Week)**

Scope: This course is designed to train the students to assist other healthcare providers in the basic services of hospital and clinical pharmacy.

Course Objectives: This course will train the students with hands-on experiences, simulated clinical case studies in the following:

1. Methods to systematically approach and respond to drug information queries
2. How to interpret common laboratory reports to understand the need for optimizing dosage regimens
3. How to report suspected adverse drug reactions to the concerned authorities
4. Uses and methods of handling various medical/surgical aids and devices
5. How to interpret drug-drug interactions in the treatment of common diseases.

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

1. Professionally handle and answer the drug information queries
2. Interpret the common laboratory reports
3. Report suspected adverse drug reactions using standard procedures
4. Understand the uses and methods of handling various medical/surgical aids and devices
5. Interpret and report the drug-drug interactions in common diseases for optimizing the drug therapy

Note: Few of the experiments of Hospital and Clinical Pharmacy practical course listed here require adequate numbers of desktop computers with internet connectivity, adequate drug information resources including reference books, different types of surgical dressings and other medical devices and accessories. Various charts, models, exhibits pertaining to the experiments shall also be displayed in the laboratory.

Practicals

1. Systematic approach to drug information queries using primary / secondary / tertiary resources of information (2 cases)
2. Interpretation of laboratory reports to optimize the drug therapy in a given clinical case (2 cases)
3. Filling up IPC's ADR Reporting Form and perform causality assessments using various scales (2 cases)
4. Demonstration / simulated / hands-on experience on the identification, types, use / application /administration of
    - Orthopaedic and Surgical Aids such as knee cap, LS belts, abdominal belt, walker, walking sticks, etc.

- Different types of bandages such as sterile gauze, cotton, crepe bandages, etc.
- Needles, syringes, catheters, IV set, urine bag, RYLE's tube, urine pots, colostomy bags, oxygen masks, etc.

5. Case studies on drug-drug interactions (any 2 cases)
6. Wound dressing (simulated cases and role play –minimum 2 cases)
7. Vaccination and injection techniques (IV, IM, SC) using mannequins (5 activities)
8. Use of Hospital Pharmacy Software and various digital health tools

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. Typical profile of a drug to be included in the hospital formulary
2. Brief layout and various services of the Central Sterile Supplies Department (CSSD)
3. Various types of sterilizers and sterilization techniques used in hospitals
4. Fumigation and pesticide control in hospitals
5. Role of Pharmacists in Transition of Care: Discharge cards, post hospitalization care, medicine reconciliation activities in developed countries
6. Total parenteral nutrition and IV admixtures and their compatibility issues
7. Concept of electronic health records
8. Invasive and Non-invasive diagnostic tests - HRCT, MRI, Sonography, 2D ECHO, X-rays, Mammography, ECG, EMG, EEG
9. Home Diagnostic Kits - Pregnancy Test, COVID testing etc
10. Measures to be taken in hospitals to minimize Antimicrobial Resistance
11. Role and responsibilities of a pharmacist in public hospital in rural parts of the country
12. Safe waste disposal of hospital waste

Field Visit

The students shall be taken in groups to visit a Government / private healthcare facility to understand and witness the various hospital and clinical pharmacy services provided. Individual reports from each student on their learning experience from the field visit shall be submitted.

PHARMACY LAW AND ETHICS – THEORY

Course Code: ER20-26T **75 Hours (3 Hours/week)**

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

Course Objectives: This course will discuss the following

1. General perspectives, history, evolution of pharmacy law in India
2. Act and Rules regulating the profession and practice of pharmacy in India
3. Important code of ethical guidelines pertaining to various practice standards
4. Brief introduction to the patent laws and their applications in pharmacy

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

1. Describe the history and evolution of pharmacy law in India
2. Interpret the act and rules regulating the profession and practice of pharmacy in India
3. Discuss the various codes of ethics related to practice standards in pharmacy
4. Interpret the fundamentals of patent laws from the perspectives of pharmacy

Chapter	Topics	Hours
1	General Principles of Law, History and various Acts related to Drugs and Pharmacy profession	2
2	**Pharmacy Act-1948 and Rules:** Objectives, Definitions, Pharmacy Council of India; its constitution and functions, Education Regulations, State and Joint state pharmacy councils, Registration of Pharmacists, Offences and Penalties. **Pharmacy Practice Regulations 2015**	5
3	**Drugs and Cosmetics Act 1940 and Rules 1945 and New Amendments** 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.	23

	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. Study of schedule C and C1, G, H, H1, K, P, M, N, and X. ***Sale of Drugs*** – Wholesale, Retail sale and Restricted license, Records to be kept in a pharmacy Drugs Prohibited for manufacture and sale in India ***Administration of the Act and Rules*** – Drugs Technical Advisory Board, Central Drugs Laboratory, Drugs Consultative Committee, Government analysts, licensing authorities, controlling authorities, Drug Inspectors.	
4	**Narcotic Drugs and Psychotropic Substances Act 1985 and Rules** Objectives, Definitions, Authorities and Officers, Prohibition, Control and Regulation, Offences and Penalties.	**2**
5	**Drugs and Magic Remedies (Objectionable Advertisements) Act 1954** Objectives, Definitions, Prohibition of certain advertisements, Classes of Exempted advertisements, Offences and Penalties.	**2**
6	**Prevention of Cruelty to Animals Act-1960**: Objectives, Definitions, CPCSEA - brief overview, Institutional Animal Ethics Committee, 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.	**2**
7	**Poisons Act-1919**: Introduction, objective, definition, possession, possession for sales and sale of any poison, import of poisons	**2**
8	**FSSAI (Food Safety and Standards Authority of India) Act and Rules**: brief overview and aspects related to manufacture, storage, sale, and labelling of Food Supplements	**2**

9	**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, Pharmaceutical Policy 2002, National List of Essential Medicines (NLEM)	**5**
10	**Code of Pharmaceutical Ethics**: Definition, ethical principles, ethical problem solving, registration, code of ethics for Pharmacist in relation to his job, trade, medical profession and his profession, Pharmacist's oath.	**5**
11	Medical Termination of Pregnancy Act and Rules – basic understanding, salient features, and Amendments	**2**
12	Role of all the government pharma regulator bodies – Central Drugs Standards Control Organization (CDSCO), Indian Pharmacopoeia Commission (IPC)	**1**
13	Good Regulatory practices (documentation, licenses, renewals, e-governance) in Community Pharmacy, Hospital pharmacy, Pharma Manufacturing, Wholesale business**,** inspections, import, export of drugs and medical devices	**3**
14	Introduction to BCS system of classification, Basic concepts of Clinical Trials, ANDA, NDA, New Drug development, New Drugs and Clinical Trials Rules, 2019. Brand v/s Generic, Trade name concept, Introduction to Patent Law and Intellectual Property Rights, Emergency Use Authorization	**7**
15	Blood bank – basic requirements and functions	**2**
16	Clinical Establishment Act and Rules – Aspects related to Pharmacy	**2**
17	Biomedical Waste Management Rules 2016 – Basic aspects, and aspects related to pharma manufacture to disposal of pharma / medical waste at homes, pharmacies, and hospitals	**2**
18	Bioethics - Basic concepts, history and principles. Brief overview of ICMR's National Ethical Guidelines for Biomedical and Health Research involving human participants	**2**
19	Introduction to the Consumer Protection Act	**1**
20	Introduction to the Disaster Management Act	**1**
21	Medical Devices – Categorization, basic aspects related to manufacture and sale	**2**

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. Requirements for Ayurvedic, Homeopathic manufacturing, sale, and licensing requirements
2. Layout and contents of official websites of various agencies regulating the profession of pharmacy in India: e.g., CDSCO, SUGAM portal, PCI, etc.
3. Licenses required, application processes (online/offline), drug regulatory office website of the respective state
4. Case studies – actions taken on violation of any act / rule related to pharmacy
5. Schedule H1 drugs and its implementation in India
6. Counterfeit / Spurious medicines
7. Drug Testing Labs in India
8. Overview of Pharma marketing practices
9. Generic Medicines

Resolution No. 3.31 of Academic Council (AC-49/2024):

Resolved to approve Universal Human Value (UHV-II) as part of curriculum to D. Pharmacy students giving added value to S.Y. D.Pharm students in their curriculum, as this course is intended to provide a much needed orientational input in value education, to be applicable for students admitted in academic year 2023-24 onwards. [Annexure-5b (Revised)]

For D. Pharm Students Annexure 5b

Universal Human Values and Professional Ethics

Universal Human Values and Professional Ethics (Theory) (3Hrs Lectures /Week)

It is proposed to introduce Universal Human Values and Professional Ethics in the S.Y. D. Pharm Syllabus from the academic year 2024-25.

Course Objectives

This introductory course input is intended

- To help the students appreciate the essential complementarily between 'VALUES' and 'SKILLS' to ensure sustained happiness and prosperity, which are the core aspirations of all human beings

- To facilitate the development of a Holistic perspective among students towards life and profession as well as towards happiness and prosperity based on a correct understanding of the Human reality and the rest of Existence. Such a holistic perspective forms the basis of Universal Human Values and movement towards value-based living in a natural way

- To highlight plausible implications of such a Holistic understanding in terms of ethical human conduct, trustful and mutually fulfilling human behavior and mutually enriching interaction with Nature

Thus, this course is intended to provide a much needed orientational input in value education to the young enquiring minds.

Course Methodology

- The methodology of this course is explorational and thus universally adaptable. It involves a systematic and rational study of the human being vis-à-vis the rest of existence.
- It is free from any dogma or value prescriptions.
- It is a process of self-investigation and self-exploration, and not of giving sermons. Whatever is found as truth or reality is stated as a proposal and the students are facilitated to verify it in their own right, based on their Natural Acceptance and subsequent Experiential Validation.
- This process of self-exploration takes the form of a dialogue between the teacher and the students to begin with, and then to continue within the student leading to continuous self-evolution.

- This self-exploration also enables them to critically evaluate their pre-conditionings and present beliefs.

Course Syllabus: Universal Human Values and Professional Ethics (Theory) (3 Hrs/Week)

- The whole course is divided into 5 modules.
- After every two lectures of one hour each, there is a 2 hour practice session.
- The teachers are oriented to the inputs through an eight to ten day workshop (Teachers' Orientation Program).
- The Teacher's Manual provides them the lecture outline. The outline has also been elaborated into presentations and provided in a DVD with this book to facilitate sharing.
- The teacher is expected to present the issues to be discussed as propositions and encourage the students to have a dialogue. The process of dialogue is enriching for both, the teacher as well as the students.

The syllabus for the lectures is given below:

UNIT 1: Course Introduction - Need, Basic Guidelines, Content and Process for Value Education 6 hours

1. Understanding the need, basic guidelines, content and process for Value Education
2. Self Exploration–what is it? - its content and process; 'Natural Acceptance' and Experiential Validation- as the mechanism for self exploration
3. Continuous Happiness and Prosperity- A look at basic Human Aspirations
4. Right understanding, Relationship and Physical Facilities- the basic requirements for fulfillment of aspirations of every human being with their correct priority
5. Understanding Happiness and Prosperity correctly- A critical appraisal of the current scenario
6. Method to fulfill the above human aspirations: understanding and living in **harmony** at various levels

UNIT 2: Understanding Harmony in the Human Being - Harmony in Myself! 6hours

7. Understanding human being as a co-existence of the sentient 'I' and the material 'Body'
8. Understanding the needs of Self ('I') and 'Body' - *Sukh* and *Suvidha*
9. Understanding the Body as an instrument of 'I' (I being the doer, seer and enjoyer)
10. Understanding the characteristics and activities of 'I' and harmony in 'I'
11. Understanding the harmony of I with the Body: *Sanyam* and *Swasthya*; correct appraisal of Physical needs, meaning of Prosperity in detail
12. Programs to ensure *Sanyam* and *Swasthya*

- Practice Exercises and Case Studies will be taken up in Practice Sessions.

For D. Pharm Students Annexure 5b

UNIT 3: Understanding Harmony in the Family and Society- Harmony in Human-Human Relationship 7 hours

13. *Understanding Harmony in the family – the basic unit of human interaction*
14. Understanding values in human-human relationship; meaning of *Nyaya* and program for its fulfillment to ensure *Ubhay-tripti*;
15. Trust (*Vishwas)* and Respect (*Samman)* as the foundational values of relationship
16. Understanding the meaning of *Vishwas*; Difference between intention and competence
17. Understanding the meaning of *Samman*, Difference between respect and differentiation; the other salient values in relationship
18. Understanding the harmony in the society (society being an extension of family): *Samadhan, Samridhi, Abhay, Sah-astitva* as comprehensive Human Goals
19. Visualizing a universal harmonious order in society- Undivided Society (*Akhand Samaj),* Universal Order (*Sarvabhaum Vyawastha)*- from family to world family!

- Practice Exercises and Case Studies will be taken up in Practice Sessions.

UNIT 4: Understanding Harmony in the Nature and Existence - Whole existence as Co-existence 4 hours

20. Understanding the harmony in the Nature
21. Interconnectedness and mutual fulfillment among the four orders of nature-recyclability and self-regulation in nature
22. Understanding Existence as Co-existence (*Sah-astitva*) of mutually interacting units in all-pervasive space
23. Holistic perception of harmony at all levels of existence

- Practice Exercises and Case Studies will be taken up in Practice Sessions.

UNIT 5: Implications of the above Holistic Understanding of Harmony on Professional Ethics 7 hours

24. Natural acceptance of human values
25. Definitiveness of Ethical Human Conduct
26. Basis for Humanistic Education, Humanistic Constitution and Humanistic Universal Order
27. Competence in professional ethics:
    a) Ability to utilize the professional competence for augmenting universal human order
    b) Ability to identify the scope and characteristics of people-friendly and eco-friendly production systems,
    c) Ability to identify and develop appropriate technologies and management patterns for above production systems.
28. Case studies of typical holistic technologies, management models and production systems
29. Strategy for transition from the present state to Universal Human Order:
    a) At the level of individual: as socially and ecologically responsible engineers, technologists and managers

b) At the level of society: as mutually enriching institutions and organizations

GUIDELINES AND CONTENT FOR PRACTICE SESSIONS

UNIT 1: Course Introduction - Need, Basic Guidelines, Content and Process for Value Education

PS 1: Introduce yourself in detail. What are the goals in your life? How do you set your goals in your life? How do you differentiate between right and wrong? What have been your achievements and shortcomings in your life? Observe and analyze them.

Expected outcome: the students start exploring themselves; get comfortable to each other and to the teacher and start finding the need and relevance for the course.

PS 2: Now-a-days, there is a lot of voice about many techno-genic maladies such as energy and natural resource depletion, environmental pollution, global warming, ozone depletion, deforestation, soil degradation, etc. – all these seem to be man-made problems threatening the survival of life on Earth – What is the root cause of these maladies & what is the way out in your opinion?

On the other hand, there is rapidly growing danger because of nuclear proliferation, arms race, terrorism, criminalization of politics, large scale corruption, scams, breakdown of relationships, generation gap, depression & suicidal attempts, etc – what do you think, is the root cause of these threats to human happiness and peace – what could be the way out in your opinion?

Expected outcome: the students start finding that technical education without study of human values can generate more problems than solutions. They also start feeling that lack of understanding of human values is the root cause of all problems and the sustained solution could emerge only through understanding of human values and value based living. Any solution brought out through fear, temptation or dogma will not be sustainable.

PS 3:

1. Observe that each one of us has Natural Acceptance, based on which one can verify right or not right for him. Verify this in case of

i) What is Naturally Acceptable to you in relationship- Feeling of respect or disrespect?

ii) What is Naturally Acceptable to you – to nurture or to exploit others?

Is your living the same as your natural acceptance or different?

2. Out of the three basic requirements for fulfillment of your aspirations- right understanding, relationship and physical facilities, observe how the problems in your family are related to each. Also observe how much time & effort you devote for each in your daily routine.

Expected outcome:

For D. Pharm Students Annexure 5b

The students are able to see that verification on the basis of natural acceptance and experiential validation through living is the only way to verify right or wrong, and referring to any external source like text or instrument or any other person cannot enable them to verify with authenticity; it will only develop assumptions.
The students are able to see that their practice in living is not in harmony with their natural acceptance most of the time, and all they need to do is to refer to their natural acceptance to remove this disharmony.
The students are able to see that lack of right understanding leading to lack of relationship is the major cause of problems in their family and not the lack of physical facilities in most of the cases, while they have given higher priority to earning of physical facilities in their life ignoring relationships and not being aware that right understanding is the most important requirement for any human being.

UNIT 2: Understanding Harmony in the Human Being - Harmony in Myself!
PS 4: List down all your desires. Observe whether the desire is related to Self (I) or Body. If it appears to be related to both, see which part of it is related to Self (I) and which part is related to Body.

Expected outcome: the students are able to see that they can enlist their desires and the desires are not vague. Also they are able to relate their desires to 'I' and 'Body' distinctly. If any desire appears related to both, they are able to see that the feeling is related to I while the physical facility is related to the body. They are also able to see that 'I' and 'Body' are two realities, and most of their desires are related to 'I' and not body, while their efforts are mostly centered on the fulfillment of the needs of the body assuming that it will meet the needs of 'I' too.

PS 5:
a. Observe that any physical facility you use, follows the given sequence with time :
Necessary & tasteful→ unnecessary & tasteful → unnecessary & tasteless → intolerable
b. In contrast, observe that any feeling in you is either naturally acceptable or not acceptable at all. If naturally acceptable, you want it continuously and if not acceptable, you do not want it any moment!
List down all your activities. Observe whether the activity is of 'I' or of Body or with the participation of both 'I' and Body.
Observe the activities within 'I'. Identify the object of your attention for different moments (over a period of say 5 to 10 minutes) and draw a line diagram connecting these points. Try to observe the link between any two nodes.

Expected outcome:
1. The students are able to see that all physical facilities they use are required for a limited time in a limited quantity. Also they are able to see that in case of feelings, they want continuity of the naturally acceptable feelings and they do not want feelings which are not naturally acceptable even for a single moment.

2. the students are able to see that activities like understanding, desire, thought and selection are the activities of 'I' only, the activities like breathing, palpitation of different parts of the body are fully the activities of the body with the acceptance of 'I' while the activities they do with their sense organs like hearing through ears, seeing through eyes, sensing through touch, tasting through tongue and smelling through nose or the activities they do with their work organs like hands, legs etc. are such activities that require the participation of both 'I' and body.
3. The students become aware of their activities of 'I' and start finding their focus of attention at different moments. Also they are able to see that most of their desires are coming from outside (through preconditioning or sensation) and are not based on their natural acceptance.

PS 6:
Chalk out programs to ensure that you are responsible to your body- for the nurturing, protection and right utilisation of the body.
Find out the plants and shrubs growing in and around your campus. Find out their use for curing different diseases.

Expected outcome: The students are able to list down activities related to proper upkeep of the body and practice them in their daily routine. They are also able to appreciate the plants wildly growing in and around the campus which can be beneficial in curing different diseases.

UNIT 3: Understanding Harmony in the Family and Society- Harmony in Human-Human Relationship
PS 7: Form small groups in the class and in that group initiate dialogue and ask the eight questions related to trust. The eight questions are :

1a. Do I want to make myself happy?
2a. Do I want to make the other happy?
3a. Does the other want to make him happy?
4a. Does the other want to make me happy?
What is the answer?
Intention (Natural Acceptance)

1b. Am I able to make myself always happy?
2b. Am I able to make the other always happy?
3b. Is the other able to make him always happy?
4b. Is the other able to make me always happy?
What is the answer?
Competence

Let each student answer the questions for himself and everyone else. Discuss the difference between intention and competence. Observe whether you evaluate your intention & competence as well as the others' intention & competence.

Expected outcome: The students are able to see that the first four questions are related to our Natural Acceptance i.e. Intention and the next four to our Competence. They are able to note that the intention is always correct, only competence is lacking! We generally evaluate ourselves on the basis of our intention and others on the basis of their competence! We seldom look at our competence and others' intention as a result we conclude that I am a good person and other is a bad person.

PS 8:
Observe on how many occasions you are respecting your related ones (by doing the right evaluation) and on how many occasions you are disrespecting by way of under-evaluation, over-evaluation or otherwise evaluation.
Also observe whether your feeling of respect is based on treating the other as yourself or on differentiations based on body, physical facilities or beliefs.

Expected outcome: The students are able to see that respect is right evaluation, and only right evaluation leads to fulfillment in relationship. Many present problems in the society are an outcome of differentiation (lack of understanding of respect), like gender biasness, generation gap, caste conflicts, class struggle, dominations through power play, communal violence, clash of isms, and so on so forth. All these problems can be solved by realizing that the other is like me as he has the same natural acceptance, potential and program to ensure a happy and prosperous life for him and for others though he may have different body, physical facilities or beliefs.

PS 9:
Write a note in the form of story, poem, skit, essay, narration, dialogue to educate a child. Evaluate it in a group.
Develop three chapters to introduce 'social science- its need, scope and content' in the primary education of children

Expected outcome: The students are able to use their creativity for educating children. The students are able to see that they can play a role in providing value education for children. They are able to put in simple words the issues that are essential to understand for children and comprehensible to them. The students are able to develop an outline of holistic model for social science and compare it with the existing model.

Unit 4: Understanding Harmony in the Nature and Existence - Whole existence as Co-existence

PS 10: List down units (things) around you. Classify them in four orders. Observe and explain the mutual fulfillment of each unit with other orders.

Expected outcome: The students are able to differentiate between the characteristics and activities of different orders and study the mutual fulfillment among them. They are also able to

see that human beings are not fulfilling to other orders today and need to take appropriate steps to ensure right participation(in terms of nurturing, protection and right utilization) in the nature.

PS 11:
Make a chart for the whole existence. List down different courses of studies and relate them to different units or levels in the existence.
Choose any one subject being taught today. Evaluate it and suggest suitable modifications to make it appropriate and holistic.

Expected outcome: The students feel confident that they can understand the whole existence; nothing is a mystery in this existence. They are also able to see the interconnectedness in the nature, and point out how different courses of study relate to the different units and levels. Also they are able to make out how these courses can be made appropriate and holistic.

UNIT 5: Implications of the above Holistic Understanding of Harmony at all Levels of Existence

PS 12: Choose any two current problems of different kind in the society and suggest how they can be solved on the basis of natural acceptance of human values. Suggest steps you will take in present conditions.

Expected outcome: The students are able to present sustainable solutions to the problems in society and nature. They are also able to see that these solutions are practicable and draw roadmaps to achieve them.

PS 13:
1. Suggest ways in which you can use your knowledge of Technology/Engineering/ Management for universal human order, from your family to the world family.
2. Suggest one format of humanistic constitution at the level of nation from your side.

Expected outcome: The students are able to grasp the right utilization of their knowledge in their streams of Pharmacy to ensure mutually enriching and recyclable productions systems.

PS 14: The course is going to be over now. Evaluate your state before and after the course in terms of
a. Thought b. Behavior c. Work d. Realization
Do you have any plan to participate in the transition of the society after graduating from the institute? Write a brief note on it.

Expected outcome: The students are able to sincerely evaluate the course and share with their friends. They are also able to suggest measures to make the course more effective and relevant. They are also able to make use of their understanding in the course for a happy and prosperous society.

For D. Pharm Students Annexure 5b

Reference Material

The primary resource material for teaching this course consists of

a. The text book

1. R.R Gaur, R Sangal, G P Bagaria, A foundation course in Human Values and professional Ethics, Excel books, New Delhi, 2010, ISBN 978-8-174-46781-2

b. The teacher's manual

2. R.R Gaur, R Sangal, G P Bagaria, A foundation course in Human Values and professional Ethics – Teachers Manual, Excel books, New Delhi, 2010

c. A set of DVDs containing

1. Video of Teachers' Orientation Program
2. PPTs of Lectures and Practice Sessions
3. Audio-visual material for use in the practice sessions

In addition, the following reference books may be found useful for supplementary reading in connection with different parts of the course:

1. B L Bajpai, 2004, *Indian Ethos and Modern Management*, New Royal Book Co., Lucknow. Reprinted 2008.
2. PL Dhar, RR Gaur, 1990, *Science and Humanism*, Commonwealth Purblishers.
3. Sussan George, 1976, *How the Other Half Dies,* Penguin Press. Reprinted 1986, 1991
4. Ivan Illich, 1974, *Energy & Equity,* The Trinity Press, Worcester, and HarperCollins, USA
5. Donella H. Meadows, Dennis L. Meadows, Jorgen Randers, William W. Behrens III, 1972, limits to Growth, Club of Rome's Report, Universe Books.
6. Subhas Palekar, 2000, *How to practice Natural Farming,* Pracheen(Vaidik) Krishi Tantra Shodh, Amravati.
7. A Nagraj, 1998, *Jeevan Vidya ek Parichay,* Divya Path Sansthan, Amarkantak.
8. E.F. Schumacher, 1973, *Small is Beautiful: a study of economics as if people mattered*, Blond & Briggs, Britain.
9. A.N. Tripathy, 2003, *Human Values*, New Age International Publishers.

For D. Pharm Students Annexure 5b

Relevant websites, movies and documentaries

1. Value Education website https://aktu.ac.in/hvpe/Default.aspx
2. Story of Stuff, *http://www.storyofstuff.com*
3. Al Gore, *An Inconvenient Truth*, Paramount Classics, USA
4. Charlie Chaplin, *Modern Times*, United Artists, USA
5. IIT Delhi, *Modern Technology – the Untold Story*
6. *Gandhi A., Right Here Right Now, Cyclewala Productions*

Assessment

Table I: Marks distribution for D. Pharm

Course code	Name of the course	Internal Assessment				Non University End Semester Exams/Final Exam		Project	Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration		
			Marks	Duration					
27 T/ MGM UHV	Universal Human Values and Professional Ethics	10	15	1 Hr	25	50	2 Hrs	25	100

'Universal Human Values and Professional Ethics' will be offered as a compulsory course in S. Y. D. Pharm. The passing marks for D. Pharm students is 40 marks out of 100 marks. It is mandatory to pass the subject in order to get the Final Marksheet at end of S.Y. D. Pharm. For D. Pharm students marks will reflect in the final mark sheet.

The Final Non University Examination for D. Pharm will be held at end of half term. Supplementary Examination will be 6 monthly for D. Pharm

Continuous mode

The marks allocated for Continuous mode of Internal Assessment shall be awarded as per the scheme given below.

For D. Pharm Students Annexure 5b

Scheme for awarding internal assessment: Continuous mode

Criteria	
	100 M Course
Attendance	**4**
Academic activities (Average of any 3 activities e.g. quiz, assignment, open book test, field work, group discussion and seminar)	**3**
Student – Teacher interaction	**3**
Total	**10**

Guidelines for the allotment of marks for attendance

Percentage of Attendance	Theory
95 – 100	**4**
90 – 94	**3**
85 – 89	**2**
80 – 84	**1**
Less than 80	**0**

Sessional Exams

Two Sessional exams shall be conducted for each theory / practical course as per the schedule fixed by the college. The scheme of question paper is given below. The average marks of two Sessional exams shall be computed for internal assessment as per the requirements given in tables of Schemes for internal assessments and end semester examinations. Sessional exam shall be conducted for 30 marks for theory and shall be computed for 15 marks.

Sessional Examination Pattern for 'Universal Human Values and Professional Ethics'

Question Type			
I Multiple Choice Questions (MCQs) (Answer all the questions)	=	1 X 10	**10**
II. Long Answers (Answer 1 out of 2)	=	1 X 10	**10**
II. Short Answers (Answer 2 out of 3)	=	2 x 5	**10**
Total			**30**

For D. Pharm Students Annexure 5b

Final Examination Pattern for 'Universal Human Values and Professional Ethics'

Question Type			
I Multiple Choice Questions (MCQs) (Answer all the questions)	**=**	1 X 10	**10**
II. Long Answers (Answer 1 out of 2)	**=**	1 X 10	**10**
II. Short Answers (Answer 6 out of 8)	=	6 x 5	**30**
Total			**50**

9. Appendices

No	Appendix Document
1.	A typical format for the assessment of an Assignment
2.	A typical format for the assessment of a Field Visit Report
3.	List of instruments and equipment required for the conduct of D.Pharm program as per ER-2020

Appendix – 1

A typical format for the assessment of an Assignment

Name of the College:

Name of the Student:	
Academic Year of the Student:	
Name of the Subject:	
Title of the Assignment:	
Date on which the Assignment was given:	
Date on which the Assignment was submitted:	
Name & Designation of the Evaluator:	
Signature of the Evaluator with Date:	

Directions: For **evaluation,** enter rating of the student utilizing the following scale:

5 – Excellent; 4 - Very Good; 3 – Good; 2 – Satisfactory; 1 - Poor

Assessment Criteria	Score	Comments if any
a. Relevance with the content		
b. Use of resource material		
c. Organization & mechanical accuracy		
d. Cohesion & coherence		
e. Language proficiency & Timely submission		
Total Score		

Signature of the Student with Date:

Note: Subject teacher should try to cover all assignments mentioned in the list for each practical subject by assigning the topics to the students. Students should be encouraged to submit an assignment (in a format decided by the Institute) and encouraged to present assignments (at least any one assignment per subject) in the class**.**

Appendix – 2

A typical format for the assessment of a Field Visit Report

Name of the College:

Name of the Student:	
Academic Year of the Student:	
Name of the Subject:	
Name & full address of the organization visited:	
Date and Duration of Visit:	
Name & Designation of the Evaluator:	
Signature of the Evaluator with Date:	

Objectives set for the field visit: (give 2 – 4 objectives one by one)
Prior preparation of the student for the field visit: (minimum 100 words)
Describe the general experiences during the field visit: (minimum 100 words)
Learning points: Describe what theoretical concept that is correlated during the field visit: (minimum 300 words)

Appendix – 3

List of Instruments and Equipment required for the Conduct of D.Pharm program as per ER-2020

As per ER 2020 regulation;

At least four laboratories specified below should be provided for:

1. Pharmaceutics Lab.
2. Pharm. Chemistry Lab.
3. Physiology, Pharmacology and Pharmacognosy Lab.
4. Biochemistry, Clinical Pathology, Hospital and Clinical Pharmacy Lab.

The institutions shall provide “Model Pharmacy” as per following details

Model Pharmacy	No.	Area
Essential: Running Model Community Pharmacy **Desirable**: Drug Model Store	01	80 Sq. Mts. (Including 10 Sq. mt. for Drug Information Centre & 10 Sq. mt. for Patient Counselling)

NOTE: Wherever animal experimentations are prescribed in the curriculum, the required knowledge and skill should be imparted by using computer assisted modules. Animal hold area shall be as per the Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA) guidelines.

Practical of Social Pharmacy, Pharmacotherapeutics can be conducted in any one of the laboratories by making necessary provisions.

Department wise List of Minimum Equipment required for D.Pharm (For a practical batch of 20 students)

1. Physiology, Pharmacology and Pharmacognosy Lab.

S. No.	Name	Minimum required Nos. for DPharm 60 intake
1	Microscopes	20
2	Haemocytometer with Micropipettes	20
3	Sahli's haemoglobinometers	20
4	Sphygmomanometers	5
5	Stethoscopes	10
6	Human Permanent Slides for various tissues	One pair of each tissue Organs and endocrine glands
7	Models for various organs	One model of each organ system
8	Specimen for various organs and systems	One model for each organ system
9	Human Skeleton and bones	One set of skeleton and one spare bone
10	Different Contraceptive Devices and Models	One set of each device
11	Digital Balance (10 mg Sensitivity)	1
12	Computer with LCD	1
13	Licensed Software packages for Physiological & Pharmacological experiment	1
14	IR Thermometer	2
15	Refrigerator	1
16	First aid equipment	Adequate number
17	Stop watch	20
18	Dummy Inhalers and Nebulizer	1
19	Pharmacotherapeutic charts for various diseases & disorders	Adequate number
20	Surgical devices and Sutures	Adequate number
21	Digital BP Instrument	5
22	Mercury Thermometer	10
23	Digital Thermometer	10
24	Pulse Oximeter	5
25	ESR Apparatus (Westergren and Wintrobe)	10
26	Peak Flow meter	10
27	Stadiometer	2
28	Adult Weighing Scale (150 kg)	5
29	Glucometer	10
30	Projection microscope	1
31	Permanent slide set of plants and charts for Pharmacognosy Lab	Adequate number
32	Drug information resources	Adequate number
33	Various types of PPE Kits,	Adequate number

34	Charts /displays/ AVs on tobacco control, glycemic index of foods, nutrition, reproductive health	Adequate number
35	Menstrual hygiene products	Adequate number
36	Display for various disinfectants, mosquito repellents etc	Adequate number
37	Water Testing Kit	Adequate number
38	Permanent slide of different microbes	Adequate number

NOTE: Adequate number of glassware commonly used in the laboratory should be provided in each laboratory and department

2. Pharmaceutical Chemistry/ Biochemistry, Clinical Pathology

S. No.	Name	Minimum required Nos. for DPharm 60 intake
1	Hot plates	5
2	Hot Air Oven	1
3	Refrigerator	1
4	Analytical Balances for demonstration	1
5	Digital balance 10mg sensitivity	5
6	Magnetic Stirrers with Thermostat	10
7	Vacuum Pump	1
8	Digital pH meter	1
9	Wall Mounted Water Distillation Unit	2
10	Nessler's Cylinders	40
11	Digital Melting Point Apparatus	2
12	Thieles Tube	20
13	Digital Colorimeter	2
14	Thermostatic Water Bath	1

NOTE: Adequate number of glassware commonly used in the laboratory should be provided in each laboratory and department

3. Pharmaceutics

S. No.	Name	Minimum required Nos. for DPharm 60 intake
1	Digital balance (10mg)	5
2	Microscopes	10
3	Autoclave	1
4	Vacuum Pump	1
5	Standard sieves, sieve no. 8, 10, 12,22,24, 44, 54, 60, 80, 85, 100, 120	10 sets
6	Tablet dissolution test apparatus IP (Digital single/double Unit)	1
7	Magnetic stirrer, 500ml and 1 litter capacity with speed control	5

8	Digital pH meter	1
9	Capsule Counter	2
10	Hot Plate	2
11	Distillation Unit	1
12	Tablet counter – small size	2
13	Hot air oven	1
14	Electric water bath unit	2
15	Stalagmometer	5
16	Desiccator	5
17	Buchner Funnels (Medium)	10
18	Filtration assembly with Vacuum Pump	1
19	Andreasen's Pipette	5
20	Ointment slab	20
21	Ointment spatula	20
22	Pestle and mortar porcelain	20
23	Refrigerator	1
24	Micrometre slide Eyepiece	5
25	Micrometre slide Stage	5
26	Viscometer Ostwald/Brookfield	1
27	Stop watch	1
28	Sintered glass filter with vacuum	4

NOTE: Aseptic cabinet or area should be provided as per Appendix A of ER 2020 Adequate number of glassware commonly used in the laboratory should be provided in each laboratory and department

Machine Room

S. No.	Name	Minimum required Nos. for D.Pharm 60 intake
1	Capsule filling machine	1
2	Automated Single Station Tablet punching machine	1
3	Tablet disintegration test apparatus IP (Digital Single/Double unit)	1
4	Monsanto's hardness tester	2
5	Pfizer type hardness tester	2
6	Friability test apparatus (Digital Single/Double unit)	1
7	Sieve shaker with sieve set	1
8	Ointment filling machine	1
9	All-purpose equipment with all accessories	1
10	Bottle washing Machine	1
11	Bottle Sealing Machine	1
12	Liquid Filling Machine	1
13	Ampoule washing machine	1
14	Ampoule filling and sealing machine (Jet Burner)	1

15	Clarity test apparatus	1
16	Collapsible tube – Filling and Sealing	1
17	Liquid Mixer	1

NOTE: Adequate number of glassware commonly used in the laboratory should be provided in each laboratory and department

4. Hospital and Clinical Pharmacy Lab

S. No.	Name	Minimum required Nos for D.Pharm 60 intake
1	Orthopaedical & Surgical Aids such as knee cap, LS belts, abdominal belt, walker, walking sticks, etc	Adequate Number
2	Different Types of bandages such as sterile gauze, cotton, crepe bandages, roll bandage etc	Adequate Number
3	Mannequins for CPR-1 (with indication Signals)	2
4	Mannequins for injection IV Arm	2
5	Variety of Needles	20
6	Variety of Syringes	20
7	Variety of catheters	5
8	IV set	20
9	Urine Bag	2
10	RYLE's tube	2
11	Urine pots	2
12	Colostomy bags	2
13	Oxygen masks	10
14	Inventory Software for Retail Pharmacy	1

NOTE: Adequate number of glassware commonly used in the laboratory should be provided in each laboratory and department

5. Model Pharmacy

S. No.	Name	Minimum required Nos. for D.Pharm 60 intake (
1	• Empty cartons of variety medicines (across variety dosage forms) • Various name plates indicating different parts of Pharmacy, • Proper arrangement of medicines, shelves, racks, drawers • Box/area for expiry medicines, • Display windows, shelves • Computer • Refrigerator • Designated patient counselling area, • Patient Information -Leaflets/Cards • Patient waiting area, • Drug Information books • Health information display, • Various devices for screening services (B.P. monitor, glucometer etc) • Height and body weight chart • Dummy devices (eg. Inhalers) • Display of pharmacist registration, license and other licenses • Display of name of owner • Inspection book, • Lock and key arrangement for Schedule X and NDPS medicines, • Bill book (dummy) , Computer stationary for bill printing	Adequate
2	Computers: hospital and community pharmacy management software	1

APPENDIX 4

Subject wise list of Recommended Books (Latest Edition)

Pharmaceutics

1. History of Pharmacy in India by Dr. Harikishan Singh
2. Indian Pharmacopoeia, Govt. of India Publication
3. A Text book of Pharmaceuticals Formulation by B.M. Mithal, Vallabh Prakashan.
4. Bentleys' Text book of Pharmaceutics, Editor E.A. Rawlins, Elsevier Int.,
5. The Theory and Practice of Industrial Pharmacy. Leon Lachman, Herbert Lieberman and Joseph Kanig, Editors, Lea and Febiger, Philadelphia. Varghese Publishing House
6. Responsible Use of Medicines: A Layman's Handbook, www.ipapharma.org / publications

Pharmaceutical Chemistry

1. Medicinal & Pharmaceutical chemistry by Harikishan Singh and VK Kapoor
2. Wilson and Griswold's Text book of Organic Medicinal and pharmaceutical Chemistry
3. Practical Organic Chemistry by Mann and Saunders.
4. Practical Pharmaceutical Chemistry, Volume- I & II by Beckett and J. B. Stenlake
5. Indian Pharmacopoeia
6. Vogel's text book of Practical Organic Chemistry

Pharmacognosy

1. Text book of Pharmacognosy by C. K. Kokate, S. B. Gokhale, A.P. Purohit, Nirali Prakashan
2. Text book of Pharmacognosy by C.S. Shah and J. S. Qadry, CBS Publishers & Distributors Pvt. Ltd.
3. Text Book of Pharmacognosy by T. E. Wallis. CBS Publishers & Distributors Pvt. Ltd.
4. Study of crude drugs by M. A. Iyengar, Manipal Press Ltd, Manipal
5. Powder crude drugs by M. A. Iyengar, Manipal Press Ltd, Manipal
6. Anatomy of crude drugs by M. A. Iyengar, Manipal Press Ltd, Manipal
7. Augmented Text Book of Homeopathic Pharmacy by Dr. D D Banerjee, B Jain Publishers (P) Ltd

Human Anatomy and Physiology

1. Human Physiology by C. C. Chatterjee
2. Human Anatomy and Physiology by S. Chaudhary and A. Chaudhary
3. Derasari and Gandhi's elements of Human Anatomy, Physiology and Health Education
4. S.R. Kale and R.R. Kale, Textbook of Practical Anatomy and Physiology
5. Ross and Wilson Anatomy and Physiology in Health and illness
6. Human Anatomy and Physiology by Tortora Gerard J
7. Fundamentals of Medical Physiology by K. Sambulingam and P Sambulingam
8. Ranade V.G. Text Book of Practical Physiology
9. Goyal R.K., Natvar M.P. and Shah S.A., Practical Anatomy, Physiology and Biochemistry, Experimental Physiology

Social Pharmacy

1. Social Pharmacy – Innovation and development. Geoff Harding, Sarah Nettleton and Kevin Taylor. The Pharmaceutical Press.
2. Text Book of Community Pharmacy Practice. RPSGB Publication
3. Community Pharmacy Handbook- Jonathan Waterfield
4. S Khurana, P Suresh and R Kalsi. Health Education & Community Pharmacy. S Vikas & Co
5. Social Pharmacy: Tayler, Geoffrey. Pharmaceutical Press. London.
6. Textbook by Dandiya PC, Zafer ZYK, Zafer A. Health education & Community Pharmacy. Vallabh Prakashan.
7. Websites of Ministry of Health and Family Welfare, National Health Portal
8. Pharmacists at the Frontlines: A Novel Approach at Combating TB www.ipapharma.org Visit Publications
9. Where There Is No Doctor: A Village Health Care Handbook by David Werner ,2015 updated version
10. Various WHO publications www.who.int

Pharmacology

1. Pharma Satoskar, R.S. and Bhandarkar, S.D. Pharmacology and Pharmacotherapeutics
2. B. Suresh, A Text Book of Pharmacology
3. Derasari and Gandhi's Elements of Pharmacology
4. S.K. Kulkarni, Practical Pharmacology and Clinical Pharmacy
5. H.K. Sharma. Principles of Pharmacology
6. Mary J. Mycek, Lippincott Williams and Wilkins. Lippincott's illustrated Reviews: Pharmacology
7. Tripathi, K.D. Essentials of Medical Pharmacology.
8. Various Drug Information Books like British National Formulary, MIMS, CIMS, Drug Today etc., WHO, NIH Websites

Community Pharmacy and Management

1. Health Education and Community Pharmacy by N.S. Parmar.
2. WHO consultative group report.
3. Drug store and Business management by Mohammed Ali and Jyoti.
4. Handbook of pharmacy – health care. Edt. Robin J Harman. The Pharmaceutical Press
5. Comprehensive Pharmacy Review – Edt. Leon Shargel. Lippincott Williams and Wilkins.
6. Good Pharmacy Practices Training Manual by IPA/CDSCO/WHO India
7. Training Module for Community Pharmacists in TB Care and Control/ by MoH/IPA
8. Hand Book of PharmaSoS, Drugs in Special population- Pregnancy and Lactation, Tobacco free future- Choice is yours: KSPC Publications.
9. Responsible Use of Medicines: A Layman's Handbook, www.ipapharma.org /publications
10. Community Pharmacy Practice around the Globe: Part One: www.ipapharma.org /publications

Biochemistry and Clinical Pathology

1. Essentials of Biochemistry by U. Satyanarayana, Books and Allied (P) Ltd.
2. A Textbook of Biochemistry by A.V.S.S. Rama Rao, UBS Publishers' Distributors Pvt. Ltd.
3. Practical Biochemistry by R.C. Gupta and S. Bhargava.
4. Laboratory manual of Biochemistry by Pattabiraman and Sitaram Acharya

Pharmacotherapeutics

1. Clinical Pharmacy and Therapeutics - Roger and Walker, Churchill Livingstone Publication
2. Clinical Pharmacy and Therapeutics - Eric T. Herfindal, Williams and Wilkins Publication
3. Applied Therapeutics: The clinical Use of Drugs. Lloyd Young and Koda-Kimble MA Lippincott, Williams and Wilkins Publication.
4. Pharmacotherapy: A Pathophysiologic approach - Joseph T. Dipiro et al. Appleton and Lange Publication.
5. National Formulary of India, Indian Pharmacopoeia Commission, Ghaziabad.

Hospital and Clinical Pharmacy

1. A Textbook of Clinical Pharmacy Practice - Essential concepts and skills - Parthasarathi G, Karin Nyfort-Hansen and Milap Nahata. Orient Longman Pvt. Ltd. Hyderabad.
2. Text Book of Hospital and Clinical Pharmacy by Dr. Pratibha Nand and Dr**.** Roop K Khar, Birla publications, New Delhi.
3. Gupta B.K and Gupta R.N., GPP in Hospital Pharmacy, Vallabh Prakashan.
4. Basic skills in interpreting laboratory data - Scott LT, American Society of Health System Pharmacists Inc.
5. Australian drug information- Procedure manual. The Society of Hospital Pharmacists of Australia.

Pharmacy Law and Ethics

1. Text book of Forensic Pharmacy by B.M. Mithal
2. Forensic Pharmacy by B. Suresh
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 publications.
9. CDSCO Website, NPPA Website
10. Books on Drugs and Cosmetic Act by Nilesh Gandhi and Sudhir Deshpande
11. Text Book of Forensic Pharmacy by Dr Guruprasad Mohanta

APPENDIX - I

CONFIDENTIAL

MGM INSTITUTE OF HEALTH SCIENCES, NAVI MUMBAI.
Statement of candidate who is alleged to have used Unfair Means at the University Examination

Full Name (in Block Letters) :

....
Surname First Name Father's / Husband Name

Address : .....

Examination : .....

Paper No. & Subject : .....

Seat No. : ..... In Words : .....

To,
The Controller of Examinations,
MGM Institute of Health Sciences,
MGM Educational Campus, Sector -18,
Kamothe, Navi Mumbai – 410 209

Sir,
I appeared at the above examination held on .....
.....
college (Centre) in the Morning / Evening session.

I give below my statement as follows:-

.....

.....

.....

.....

.....

.....

.....

Place : .....

Date : .....**Time :** ..... **Signature of the Candidate**

APPENDIX - II

CONFIDENTIAL
FORM OF UNDERTAKING

Full Name of the Candidate (in Block Letters) :

.....	.....	.....
Surname	First Name	Father's/Husband's Name

Permanent / Local Address : .....
.....
.....
.....

To,
The Controller of Examinations,
MGM Institute of Health Sciences,
MGM Educational Campus, Sector -18,
Kamothe, Navi Mumbai – 410 209

Sir,

I, the undersigned student of ..... College / Institution appearing for ..... Examination at the ....College (Centre), do hereby state on solemn affirmation as under:-

I understand that I am involved in an alleged use of Unfair Means in the Examination Hall and therefore, a case against me is being reported to the University.

That inspite of the registration of a case of Unfair Means against me, I request the University authorities to allow me to appear in the present paper and the papers to be set subsequently and/or at the University examination to be held hereafter.

In case my request is granted, I do hereby agree that my appearance in the examination will be provisional and subject to the decision of the University Authorities in the matter of disposal of the case of alleged use of Unfair Means referred to above.

I also hereby agree that in the event of myself being found guilty at the time of investigation of the said case, my performance at the examination to which I have been permitted to appear provisionally, consequent upon my special request, is liable to be treated as **null and void**.

In witness whereof I set my hand to this undertaking.

Signature of the Candidate
Date : .....
Before me.....
Chief Conductor of the Centre and Rubber Stamp of the College / Institution / University

APPENDIX – III

CONFIDENTIAL

MGM INSTITUTE OF HEALTH SCIENCES, NAVI MUMBAI

Report of the Jr. Supervisor / Sr. Supervisor / Chief Conductor / Centre Incharge

Block No. : .....
Examination : .....
Subject : .....
Date : .....

To,
The Controller of Examinations,
MGM Institute of Health Sciences,
MGM Educational Campus, Sector -18,
Kamothe, Navi Mumbai – 410 209

Sir,
I, the undersigned Jr. Supervisor appointed on the abovementioned Block at the .....
.....Examination held at
..... College (Centre), am hereby making report against Candidate Seat No. ..... Shri. / Kum. .....
..... at the examination, as follows:-

Yours faithfully,

(Signature Jr. Supervisor)
Date : .....
Time
Name & Address of the Junior Supervisor
.....
.....

On the basis of the report made by the Jr. Supervisor / Flying Squad, I am of the opinion that there is a prima facie case of Unfair Means resorted to by the aforesaid Candidate No..... and therefore, the case be forwarded to the University for investigation.
Forwarded to the Controller of Examinations, MGM Institute of Health Sciences, Navi Mumbai for necessary action.

Seal of the College / Institute / University (Centre)

Signature of the Chief Conductor / Centre Incharge

Place : .....
Date : .....
Encl. : .....

.....
Signature of the Centre Observer

(N.B. : Kindly enclose a copy of the relevant question paper)

Head of
Institute .....

MGM INSTITUTE OF HEALTH SCIENCES

(Deemed University u/s of 3 UGC Act, 1956)
Accredited by NAAC with 'A' Grade

APPENDIX IX

GUIDELINES FOR CONDUCTING WRITTEN EXAMINATION FOR STUDENTS WITH DISABILITIES

A. The term examination stand for all Annual/Semester examinations conducted by the University.
B. The facilities specified in the Document will include the following categories of students:

Sr. No.	Category	Facilities to be provided
(a)	Students with 100% Visual Disabilities.	➢ Writer ➢ Compensatory Time, as per rule
(b)	Students with low vision	➢ Writer (If the permanent disability of the students may be a hindrance in his/her ability to write the Examination)
(c)	Students with orthopedics disability	➢ Writer (If the candidate is unable to writer his/her examinations himself /herself) ➢ Compensatory Time, as per rule (Where the facility of writer is availed of his disability may be a hindrance in his/her ability to write the examination
(d)	Students with cerebral palsy and other brain related ailments that demand support system	➢ Writer (If the candidate is unable to write his/her examinations himself/her self ➢ Compensatory Time, as per rule 9Where the facility of writer is availed or his disability may be a hindrance in his/her ability to write the examination)
(e)	Students with hearing or speech impairment	➢ A sign interpreter ➢ Extra Time, as per rule

The facilitates mentioned against each category in respect of the students of above categories may be provided by the Controller of the Examination after obtaining the prior

approval of the University, if the candidate possesses a valid permanent disability certificate issued by the Medical Board of a Government Hospital. However, these facilities will be provided subject to fulfilling other conditions laid down in this document.

A. The candidate, who will be eligible for writer/scribe/interpreter in any of the categories mentioned above, should have the discretion of opting for his own scribe/reader/lab assistant or request the Examination Body for the same. The examining body may also identify the scribe/reader/lab assistant to make panels as per the requirements of the examination

C. The writer should be less qualified than the examinee. The writer is required to produce his/her identity, and a document of the last exam passed before the examination to the Controller of Examinations and to the visiting team if required.

D. The writer must be paid on the last day of the examination by the Centre In charge. Each centre may claim the required remuneration in from the University after the examination is over.

E. The fee for the writer, scribe, interpreter and Invigilator is to be borne by the University.

F. The remuneration of the interpreter will be equivalent to the remuneration of the writer. They will be paid as per the rates prescribed by the University.

G. If required, each examination centre must arrange for a sign language interpreter for the candidates with hearing/speech impairment. The interpreter should be available for the entire duration of the examination.

H. Extra time over and above the prescribed time for a paper will be 1/3rd of the duration of examination

I. The seating arrangements for persons with locomotors disabilities must be on the ground floor, in an accessible building equipped with disabled friendly toilets as far as possible.

J. Where the facility of writer is provided to any candidate, he/she may be assigned a separate invigilator and a separate room. This provision must also be made for candidates who do not require a writer but are permitted extra time

K. The institution must get prescribed Performa for writers duly filled by the writers/scribes/interpreters obtain the receipts of payments made to them

L. A statement showing the particulars (such as Roll No. Name, Course, College and date of Examination) of the disability category student/s appearing at examinations and who have been provided the facilities, as above, must be sent to the Examination branch along with the writer's profroma, receipt of payment, copy of the admit card and copy of the disability certificate of the candidate by the concerned institutions for the maintenance of records and avoid any future discrepancies.

APPENDIX- I

Certificate regarding physical limitation in an examinee to write.

This is to certify that, I have examined Mr/MS/ Mrs

_____

(name of the candidate with disability), a person with _____ (nature and percentage of disability as mentioned in the certificate of Disability), S/o/D/o _____, a resident of _____ (village/ District / State) and to state that he /she has physical limitation which hampers his/her writing capabilities owing to his/her disability.

Signature

Chief Medical Officer/ Civil Surgeon/
Medical Superintendent of a MGM

Name & Designations

MGM Medical College with seal

Place:

Date:

Note :

Certificate should be given by a specialist of the relevant stream/ disability (eg. Visual impairment- ophthalmologist, Lcomotor disability- Prothopaedic specialist/ PMR).

APPENDIX- II

Letter of Undertaking for Using Own Scribe

I _____ a candidate with _____ (name of the disability) appearing for the _____ (name of the examination) bearing Roll No. _____ at _____ (name of the Centre) in the District _____, _____ (name of the State). My qualification is _____.

I do hereby state that _____ (name of the scribe) will provide the service of scribe/ reader/ lab assistant for the undersigned for taking the aforesaid examination.

I do hereby undertake that his qualification is _____. In case, subsequently it is found that his qualification is not as declared by the undersigned and is beyond my qualification. I shall forfeit my right to the post and claims relating thereto.

(Signature of the candidate with disability)

Place:

Date:

MGM INSTITUE OF HEALTH SCIENCES

Accredited by NACC with "A^{++}" Grade

(Deemed University u/s 3 of UGC Act 1956)

Sector-01, Kamothe, Navi Mumbai-410 209

Tel 022-27432471, 022-27432994, Fax 022-27431094

Email. registrar@mgmuhs.com; Website: www.mgmuhs.com

RULES AND REGULATION FOR EXAMINATION OF DIPLOMA COURSE IN PHARMACY UNDER MGM SCHOOL OF PHARMACY

(Approved by BOM- , Dated:)

MGM SCHOOL OF PHARMACY, NAVI MUMBAI

(A constituent unit of MGM INSTITUTE OF HEALTH SCIENCES)
(Deemed University u/s 3 of UGC Act 1956)
Grade "A" Accredited by NAAC
Sector 8, Nerul, Navi Mumbai-400706
Email. pharmacy@mgmuhs.com /
Website: www.mgmuhs.com

Ref: **Date:**

To,

The Registrar
MGMIHS
Kamothe
Navi Mumbai.

Sub: Examination Rules and Regulations for Diploma in Pharmacy

Respected sir,

We are sending detailed examination Rules and Regulations including examination pattern for D. Pharm course for smooth conduct of examination of D. Pharm after approval from examination section of MGMIHS.

Request you to consider same.

Thanking you.

Regards,

Principal
MGM School of Pharmacy
Navi Mumbai.

RULES AND REGULATION FOR EXAMINATION OF DIPLOMA COURSE IN PHARMACY UNDER MGM SCHOOL OF PHARMACY

1.0 **Title of the courses offered:** Diploma in Pharmacy (D. Pharm)

2.0 **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.

3.0 **Medium of instruction:** The medium of instruction and examination shall be in English

4.0 **Pattern:** As per PCI directives yearly pattern should be followed.

5.0 Course 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. However, the course of study and practical training may be modified by the Pharmacy Council of India from time to time

Table-I (F.Y.D. Pharm)

Diploma in Pharmacy (Part - I) First Year			
	Number of Hours		
Subject	**Theory**	**Practical**	**Tutorial**
Pharmaceutics	75	75	25
Pharmaceutical Chemistry	75	75	25
Pharmacognosy	75	75	25
Human Anatomy & Physiology	75	75	25
Social Pharmacy	75	75	25
Total	**375**	**375**	**125**

Table II

Diploma in Pharmacy (Part - II) Final Year			
	Number of Hours		
Subject	**Theory**	**Practical**	**Tutorial**
Pharmacology	75	50	25
Community Pharmacy & Management	75	75	25
Biochemistry & Clinical Pathology	75	50	25
Pharmacotherapeutics	75	25	25
Hospital & Clinical Pharmacy	75	25	25
Pharmacy Law & Ethics	75	-	25
Total	**450**	**225**	**150**

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

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

MGM School of Pharmacy
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Grade 'A^{++}' Accredited by NAAC
Plot No.-14, Sector-08, Nerul, Navi Mumbai
D. PHARM CURRICULUM

SCHEME OF EXAMINATION

The distribution of marks in internal assessment and University Exam are shown below.

Table IV (a): Marks distribution for Theory Examination (F.Y. D. Pharm)

Sr. No	Course code	Title of the Course	Internal Assessment Marks	University Exam Marks	Duration (hr)	Total Marks
1.	ER20-11T	Pharmaceutics	20	80	3	100
2	ER20-12T	Pharmaceutical Chemistry	20	80	3	100
3	ER20-13T	Pharmacognosy	20	80	3	100
4	ER20-14T	Human Anatomy & Physiology	20	80	3	100
5	ER20-15T	Social Pharmacy	20	80	3	100

Table IV(b): Marks distribution for Practical Examination (F.Y. D. Pharm)

Sr. No	Course code	Title of the Course	Internal assessment Marks			Total Internal Marks	University Exam Marks	Duration (hr)	Total Marks
			Actual Performance	Assignment	Field Visit				
1.	ER20-11P	Pharmaceutics	10	5	5	20	80	3	100
2	ER20-12P	Pharmaceutical Chemistry	10	10	-	20	80	3	100
3	ER20-13P	Pharmacognosy	10	5	5	20	80	3	100
4	ER20-14P	Human Anatomy & Physiology	20	-	-	20	80	3	100
5	ER20-15P	Social Pharmacy	10	5	5	20	80	3	100

Table V (a): Marks distribution for Theory Examination (S.Y. D. Pharm)

Sr. No	Course code	Title of the Course	Internal Assessment Marks	University Exam Marks	Duration (hr)	Total Marks
1.	ER20-21T	Pharmacology	20	80	3	100
2	ER20-22T	Community Pharmacy and Management	20	80	3	100
3	ER20-23T	Biochemistry & Clinical Pathology	20	80	3	100
4	ER20-24T	Pharmacotherapeutics	20	80	3	100
5	ER20-25T	Hospital & Clinical Pharmacy	20	80	3	100
6	ER20-26T	Pharmacy Law & Ethics	20	80	3	100

Table V (b): Marks distribution for Practical Examination (S.Y. D. Pharm)

Sr. No	Course code	Title of the Course	Internal assessment Marks			Total Internal Marks	University Exam Marks	Duration (hr)	Total Marks
			Actual Performance	Assignment	Field Visit				
1.	ER20-21P	Pharmacology	10	10	-	20	80	3	100
2	ER20-22 P	Community Pharmacy and Management	10	5	5	20	80	3	100
3	ER20-23 P	Biochemistry & Clinical Pathology	10	10	-	20	80	3	100
4	ER20-24 P	Pharmacotherapeutics	20	-	-	20	80	3	100
5	ER20-25 P	Hospital & Clinical Pharmacy	10	5	5	20	80	3	100

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D. PHARM CURRICULUM

EXAMINAION REGULATIONS

The Pharmacy Council of India (PCI) has, with the approval of the Central Government, prescribed "Minimum Standards for Pharmacy Education Regulations" for imparting Pharmacy education throughout India for the award of Recognized Qualifying Degree or Diploma in Pharmacy for the purpose of registration as a Pharmacist. Since the "Regulations 2020" are applicable as mandatory requirement for Diploma in Pharmacy program MGM Institute of Health Science (MGMIHS) is adhering to the same.

1.0 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. Each examination may be held twice every year. The first examination in a year shall be the Annual examination and second examination shall be supplementary examination of the Diploma in Pharmacy (Part-I) or Diploma in Pharmacy (Part-II), as the case may be.

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 (a and b) and V (a and b).

2.0 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.

3.0 Eligibility for Award of Diploma in Pharmacy

A candidate to be eligible for award of Diploma in Pharmacy shall have to pass

- Diploma in Pharmacy Part-I (First year) and
- Diploma in Pharmacy Part-II (Final year)
- Diploma in Pharmacy (Part-III)

Part III consisting of Practical Training and the Certificate of having completed satisfactorily the apprenticeship period as prescribed by the Pharmacy Council of India.

Eligibility for Diploma in Pharmacy (Part-II)

If a candidate completes satisfactorily the term of First Year and appears in all subjects/courses including theory, practical and sessional/oral of Diploma in Pharmacy Part-I Examination, but fails in more than two subjects/courses (including theory and/or practical with Sessional/ Oral), he/she shall not be eligible for promotion to Diploma in Pharmacy Part-II.

A candidate who fails in theory or practical examination of a subject/course shall re-appear such in theory paper or Practical as the case may be.

4.0Results of final year and first year examinations to be declared simultaneously

The result of a candidate, who has appeared for final year examination simultaneously with first year examination, shall be withheld until he/she passes in the first-year examination. However, if such candidate fails in the final year examination, the result would be declared.

5.0Teaching and Examination Scheme

The teaching and examination scheme of Diploma in Pharmacy shall be as prescribed in the Education Regulation, 2020 of Pharmacy Council of India and adopted by the MGMIHS, subject to such revision and modification made from time to time by Pharmacy Council of India.

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.

One internal and one external examiner should jointly conduct final practical examination for each student.

An examiner for theory or practical subject should have minimum 3 years of experience.

6.0Award of Sessional Marks and maintenance of record

Theory and practical examination will be conducted by the institute in the manner prescribed in Education Regulation 2020 as under:

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 practical 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.

4) If any candidate remains absent for any periodic test, he/she shall be deemed to have secured zero marks in the said test.

7.0 Improvement of Sessional Marks

A candidate may improve the sessional marks as under:

Candidate who wishes to improve sessional marks can do so, by appearing in two additional sessional examinations during the next academic year. The average score of the two examinations shall be the basis of improved sessional marks in theory as well as in practical. Marks awarded to a candidate for day-to-day assessment in the practical class cannot be improved unless he/she attends a regular course of study again.

The facility of improvement of sessional marks shall be given only for **one time**.

8.0 Standard of Passing and Award of Class

A) Standard of Passing

A candidate shall not be declared to have passed Diploma in Pharmacy examination, unless he/she secures at least 40% marks in each of the subjects/courses separately in the theory examinations including sessional marks.

B) Award of Class

First Class with Distinction

The candidate securing 75% of aggregate marks or above **in a single attempt at** the Diploma in Pharmacy (Part-I) or Diploma in Pharmacy (Part- II) examination, shall be declared to have passed the related examination in First class with Distinction.

First Class

The candidate securing 60% of aggregate marks or above but less than 75% marks in a single attempt at the Diploma in Pharmacy (Part-I) or Diploma in Pharmacy (Part- II) examination, shall be declared to have passed the related examination in First class

Second Class

The candidate securing 50% of aggregate marks or above but less than 60% marks in a single attempt at the Diploma in Pharmacy (Part-I) or Diploma in Pharmacy (Part- II) examination, shall be declared to have passed the related examination in Second class.

C) Eligibility for promotion to Diploma in Pharmacy (Part-II)

All candidates who have appeared for all the subjects and passed the Diploma in Pharmacy Part-I examination are eligible for promotion to the Diploma in Pharmacy Part-II class. However, **failure in more than two subjects** shall debar him/her from promotion to Diploma in Pharmacy Part II class.

9.0 Gracing:

Not specified by PCI (Rules and regulations set by Maharashtra State Board of Technical Examination i.e. MSBTE, an examining authority for Diploma in Pharmacy course in Maharashtra are attached, RP-11, Page no. 39) **Annexure I**

A) Gracing for Award of Class

If a candidate falls short by maximum ½% of the aggregate marks assigned to the examination, to be eligible for First class or Second class, such deficiency would be removed by adding maximum ½% of the aggregate marks assigned to the examination to the total marks obtained by the candidate in the examination. While adding maximum ½% of the aggregate marks fraction of a mark shall be rounded to the next full number and added in the total.

B) Gracing for Subject/Course Passing

A candidate would get the grace marks of maximum 1 or 2 as the case may be to remove the deficiency in securing minimum marks for passing a theory subject/course having total marks below 75 or maximum 1, 2 or 3 as the case may be, for a subject/course theory having total marks 75 or above, in theory and test examination of that subject/course.

10.0 Certificate of passing examination for Diploma in Pharmacy (Part-II): Certificate of having passed the examination for the Diploma in Pharmacy Part-II shall be granted by the MGMIHS to a successful student.

11.0 Re-totalling and Re-verification criteria:

Not specified by PCI. Criteria's given by MGM Institute of Health Sciences shall be followed.

Re-totaling /Verification of Answer-Books: The Answer-books may be scrutinized for retotaling of total marks and for verification of all answers have been assessed in case the candidate applies for the same. However, if any answers are found to be unassessed, the Vice

Chancellor shall call for such answers to be checked by a subject expert and the marks allotted for such answers shall be accounted towards total marks obtained by the examiner.

As a result of such reverification/retotaling, if it is found that the result of any examinee needs to be changed, the Vice-Chancellor shall publish a supplementary list embodying the results of such verification.

Before a reply is sent to the applicant, the report of the verification/retotaling of the answer-books by the scrutineers shall be counter checked and signed by the Board of Examinations.

Application for verification/retotaling of marks from an examinee shall be submitted to the Controller of Examinations within 7 days from the date of declaration of the results concerned. In no case application for verification shall be entertained after the expiry of seven days from the date of its declaration. Verification of the written answer books shall be undertaken by the subject experts as appointed by the competent authority.

The Vice Chancellor may decide spot evaluation of answer books of each examination if such faculties exists in the examination center.

Amendment of Results

Due to errors: In any case where it is found that the result of an examination has been affected by errors, the Controller of Examinations shall have power to amend such a result in such a manner as shall be in accordance with the true position and to make such declaration as is necessary, with the necessary approval of Vice-Chancellor/Pro Vice Chancellor, provided the errors are reported detected within 6 months from the date of declaration of results. Errors detected thereafter shall be placed before the Board of Examinations.

Error means-

1. Error in computer/data entry, printing or programming and the like.

2. Clerical error, manual or machine, in totaling or entering of marks on ledger/register

3. Error due to negligence or oversight of examiner or any other person connected with evaluation, moderation and result preparation.

4. Due to fraud, malpractices etc.

5. In the case where the result of an examination has been ascertained and published and it is found that such result has been affected by any malpractices, fraud or any other improper conduct whereby an examiner has benefited and that such examinee, has in the opinion of the Board of Examinations been party or privy to or connived at such malpractice, fraud or improper conduct, the Board of Examinations shall have power at any time, notwithstanding the issue orders to amend the result of such examinee and to make such declaration as the Board of Examinations considers necessary.

12.0 Unfair means: MGM Institute of Health Sciences rules can be followed.

Unfair means resorted to by the Candidate:

General: On receipt of a report regarding the use of unfair means by any candidate at the University Examination, including breach of any rules laid down by the University, the Board of Examination shall have their power at any time to institute inquiry and punish such unfair means or breach of the rules by exclusion of such students from any University Examination or from any University Course in a Constituent College or in the University Department or from any Convocation for the purpose of conferring degree either permanently or for a specified period, or by cancellation of the result of the student in the University Examination for which the student appeared or by deprivation of any University scholarship held by him/her or by cancellation of the award of any University prize or medal to him/her or by the imposition of fine or in any two or more aforesaid ways within a period of one year.

On receipt of report regarding malpractices used or lapses committed by any paper setter, examiner, moderator, refree, teacher or any other person concerned with the conduct of examination held by the University, including breach of rules laid down for proper conduct of examination, the Board of Examinations in case of University Examination, shall have power at any time to institute inquiry and to punish such malpractices or lapses by declaring the concerned paper setter, examiner, moderator, refree, teacher or any other person connected with the conduct of examination work disqualified either permanently or for a specified period or by referring his/her case to the concerned authorities for taking such disciplinary action as deemed fit as per the rules provided for or in any two or more aforesaid ways.

Definition- Unless the context otherwise requires

Competent Authority- The Board of examination of the University shall be the competent authority to take appropriate disciplinary action against the students using attempting to use, aiding, abetting, instigating or allowing to use unfair means at the examination conducted by the University.

"Unfair means" include one or more of the following acts of commission or omissions on the part of students during the examination period:

1. Possessing unfair means material and copying there from.
2. Transcribing any unauthorized material or any other use thereof.
3. Intimidating or using obscene language or threatening or use of violence against invigilator or person on duty for the conduct of examination or man-handling him/her or leaving the examination hall without permission of the supervisor or causing disturbances in any manner in the examination proceedings.
4. Unauthorized communicating with other examinees or anyone else inside or outside the examination hall.
5. Mutual/mass copying.
6. Smuggling –out or smuggling-in of either blank or written answer books as copying material.

7. Smuggling-in blank or written answer books and forging signature of Jr. Supervisor thereon.
8. Interfering with or counterfeiting of University/Institution seal or answer books or office stationary used in the examination.
9. Insertion of currency notes in the answer books or attempting to bribe any person connected with the conduct of examination.
10. Impersonation at University/College/Institution examination.
11. Revealing identity in any form in the answers written or in any part of the answer book by the student at the University or College or Institution examination.
12. Or any other similar act/s of commission/s and/or omission /s which may be considered as unfair means by the competent authority.

“Unfair means relating to examination” means and includes directly or indirectly committing or attempting to commit or threatening to commit any act of coercion undue influence or fraud or malpractice with a view to obtaining wrongful gain for oneself or to any other person or causing wrongful loss to other person/s.

“Unfair means material” means and includes any material whatsoever, related to the subject of examination, printed, typed, handwritten, or otherwise found on the person or on clothes, or body of the examinee or on wood or any other material, in any manner or in the form of chart, diagram, map or drawing or electronic aid etc which is not allowed in the examination hall.

“Possession of unfair means material by a student” means having any unauthorized material including cell phones, electronic devices if any on his/her person or desk or chair or table or any place within his/her reach, in the examination center and its environs or premises at any time from the commencement of examination till its conclusion.

“Student found in possession” means a student reported in writing, as having been found in possession of unfair means material by the invigilator or member of the vigilance Committee or Examination Squad or any other person authorized for this purpose, in this behalf, even if the unfair means material is not produced as evidence because of it being reported as swallowed or destroyed or snatched away or otherwise taken away or spoiled by the student or any other person acting on his behalf to such an extent that it has become illegible, provided report to that effect submitted by the Sr. Supervisor or Chief Conductor or any other authorized person to the Controller of Examination or Dean/ Principal or Head of Institution concerned or any officer authorized in this behalf.

"Material related to the subject of examination" means and includes, if the material is produced as evidence, any material certified as related to the subject of the examination by a competent person and if the material is not produced as evidence or has become illegible for any of the reasons referred to in clause mentioned above, the presumption shall be that the material did relate to the subject of the examination.

"Chief Conductor" means Dean/Principal of the College concerned, where concerned examination is being conducted, and any other person duly authorized by him or person appointed as the examination centre-in-charge, by the University.

Disciplinary control: During examination, examinees and other students shall be under disciplinary control of the Chief Conductor/centre in charge.

"Procedure to be followed by the invigilator incharge" the Examination Centre in charge shall, in the case of unfair means, follow the procedure as under:

The examinee shall be called upon to surrender to the chief Conductor, the unfair means material found in his or her possession, if any, and his/her answer book to the chief conductor/ centre in charge.

Signature of the concerned student shall be obtained on the relevant materials and list thereon. Concerned Supervisor and the Chief Conductor shall also sign on all the relevant materials and documents.

Statement of the student and his/her undertaking in the prescribed format and statement of the concerned Supervisor (**Annexure II**) shall be recorded in writing by the Chief Conductor. If the student refuses to make statement or to give an undertaking, the concerned Supervisor and Chief Conductor shall record such fact(s) accordingly, under their signatures.

Chief Conductor shall take one or more of the following decisions depending upon seriousness/gravity of the case:

The case of impersonation or violence, expel the concerned student from the examination and not allow him/her to appear for the remaining examination.

Obtain undertaking from the examinee to the effect that the decision of the concerned competent authority in his/her case shall be final and binding and allow him/her to continue with his/her examination.

May report the case to the concerned Police Station as per provisions of Maharashtra Act. No. XXXI 1982 - An act to provide for preventing mal-practices at University; Board and other specified examinations.

Confiscate his/her answer book, mark it as "suspected unfair means case" and issue him/her fresh answer book duly marked.

All the materials and list of material mentioned in cluuse/subclause above and the undertaking with the statement of the student and that of the Supervisor as mentioned in above clause and the answer book/s shall be forwarded by the centre in charge Chief Conductor, along with his/her report, to the Controller of Examinations/Head of the Institution, as the case may be, in a separate and confidential sealed envelope marked "Suspected unfair means case".

In case of unfair means of oral type, the Jr. Supervisor and the Sr. Supervisor or concerned authorized person shall record the facts in writing and shall report the same to the concerned.

Procedure to be followed by Examiner during Assessment: If the examiner at the time of assessment of answer book suspects that there is a prima-facie evidence that the examinee's whose answer book's the examiner is assessing appears to have resorted to unfair means in the

examination, the examiner shall forward his/her report, preferably through the CAP In charge along with the evidence, to the Examinations with his/her opinion in separate confidential sealed envelope marked as "Suspected unfair means case".

A prima facie case of unfair means reported to the University/College/Institution by the invigilator/ Centre In charge/Supervisor and or examiners, shall be inquired into by the Committee appointed by the Vice Chancellor. In the event cases of unfair means are reported through any other sources, the concerned Officer/In- charge of the sub-section/Unit to which the case primarily pertained, at the Examination Section of the University/College/Institution shall scrutinize the case, collect preliminary information to find out whether there is a prima-facie case so as to fix up primary responsibility for framing a charge sheet and then shall submit the said case with his/her primary report to the concerned Competent Authority. If the Competent Authority is satisfied that there is a prima facie case it shall place the same before the Unfair Means Inquiry Committee for further investigation. The concerned Officer of the Sub-Section/Unit, through which the case has originated or to who the case is pertaining to, shall be the Presenting Officer of the case before the Inquiry Committees, Police Authorities and Court of Justice and shall deal with the case till it is finally disposed of.

Result: Examination Result/s of the concerned student/s involved in such cases shall be withheld till the Competent Authority arrives at a final decision in the matter and the concerned examinee/s and the College/Institution to which he/she belongs to, shall be informed about the decision accordingly.

Appointment of Unfair Means Inquiry Committee: For the purpose of investigating unfair means resorted to by examinees at the University examination, the Board of Examinations shall appoint a Committee in terms of the provisions made in regulations of the MGM Institute of Health Sciences Regulation. The term of the Committee shall be not more than one year subject to provisions in Bye Laws further.

The member of the College/Institution Examination Committee shall not be appointed members of the Unfair Mean Inquiry Committee.

The Unfair Means Inquiry Committee will function as a recommendatory body and submit its recommendations in the form of a report to concerned competent authority, which will issue final orders with regard to the penal action to be taken against the examinee/s after taking into account the reported facts and findings of the case by the Committee and after ensuring that reasonable opportunity has been given to the concerned implicated examinee in his/her defence, that the principle of natural justice has been followed that and the recommended quantum of punishment is in accordance with the guidelines laid down in this behalf.

Procedure of the unfair means committee:

The Controller of Examinations of the University or the Officer authorised by them, as the case may be, shall inform the examinee concerned in writing of the act of unfair means alleged to have been committed by him/her, and shall ask him/her to show cause as so why the charge/s

levelled against him/her should not be held as proved and why the punishment stipulated in the show cause notice should not be imposed.

The examinee may appear before the Inquiry Committee on a day, time and place fixed for the meeting, with written reply/explanation to the show cause notice served on him/her therein. The examinee himself/herself only shall present his/her case before the Committee.

The documents that are being taken into consideration or are to be relied upon for the purpose of proving charge/s against the examinee should be shown to him/her by the Inquiry Committee. If the examinee presents himself/herself before the Committee. The evidence, if any, should be recorded in the presence of the delinquent examinee.

Reasonable opportunity, including oral hearing, shall be given to the student in his/her defence before the Committee. The reply/explanation given by the student to the show cause notice shall be considered by the Committee before making final recommendation in the case.

The Committee should follow the above procedure in the spirit of the principles or natural justice.

After serving a show cause notice, if the implicated examine fails to appear before the Inquiry Committee on the day, time and place fixed for the meeting, the student may be given one more opportunity to appear before the Committee in his/her defence. Even after offering two chances, if the student concerned fails to appear before the Committee, the Committee shall take decision in his/her case in absentia, on the basis of the available evidence/documents, which shall be binding on the student concerned.

The Committee shall submit its report to the University along with its recommendations regarding punishment to be inflicted or otherwise.

Punishment

The Board of Management as recommended of the Board of Examinations in the cases of University examination, shall pass such orders as it deems fit including granting the student benefit of doubt, issuing warning or exonerating him/her from the charges and shall impose any one or more of the following punishment on the student/s found guilty of using unfair means.

Annulment of performance of the examinee in full or in part in the examination he/she has appeared for.

Debarring examinee from appearing for any examination of the University or College or Institution for a stipulated period not exceeding five year.

Debarring examinee from taking admission for any course in the University or College or Institution for a stipulated period not exceeding five years.

Cancellation of the University or College or Institution Scholarship's or award/s or prize or medal etc. awarded to him/her in that examination.
In addition to the above mentioned punishment, the competent authority may impose a fine on the examinee declared guilty. If the examinee concerned fails to pay the fine within a stipulated period, the competent authority may impose on such an examinee additional punishment/penalty as it may deem fit.

As far as possible the quantum of punishment should be as prescribed (category-wise) as under:

The examinee concerned be informed of the punishment finally imposed on him/her in writing by the competent authority or by the Officer authorised on its behalf, under intimation to the College/Institution he/she belongs to as well as the Centre in charge.

If on a previous occasion, a disciplinary action was taken against a student for malpractice used at examination and he/she is caught again for malpractices at the examination, in this event, he/she shall be dealt with severely with enhanced punishment. This enhanced punishment may extend to double the punishment provided for the offence, when committed at the second or subsequent examination.

Practical/Dissertation/Project Report Examination Student involved in malpractices at Practical examination / Dissertation/Project Report preparation including plagiarisation/s shall be dealt with as per the procedure and quantum of punishment provided for the theory examinations.

The Competent authority, in addition to the above mentioned punishments, may impose a fine on the student declared guilty. (Note: The Term "Annulment of Performance in full" includes performance of the student at the theory as well as annual Practical examination, but does not include performance at term work, project work with its term work, oral or practical & dissertation examinations unless malpractices is used in that.)

Malpractices used or Lapses Committed by any Paper – Setters, Examiners, Moderators, Referees, Teachers or any other persons connected with the Conduct of Examination: The Boards of Examination shall be the competent authority to take appropriate disciplinary action against the paper-settlers, examiners, moderators, referees, teachers or any other persons connected with the conduct of examinations committing lapses or using, attempting to use, aiding, abetting, instigating or allowing to use malpractices/s at the examinations conducted by the University under information to the respective institutional Head / Dean / Principals.

Definition: Unless the context otherwise requires

“Paper-setter, examiner, moderator, referee and teacher” means and includes person/s duly appointed as such for the examination by the competent authority and the term “any other person connected with the conduct of examination” means and includes person/s appointed on examination duty by the competent authority.

Malpractice/lapses includes one or more of the following acts of commission or omissions on the part of the person/s relating to the examination.

1. Leakage of question/s or question paper set at the University/College Institution examination before the time of examination.

2. Examiner / Moderator intentionally awarding marks to student in assessment of answer books, dissertation or project work to which the student is not entitled or not assigning marks to the student to which the student is entitled.

3. Paper-setter omitting a question, Sr. No. of question, repeating question or setting question outside the scope of syllabus.
4. Examiner / Referee showing negligence in detecting malpractice used by the student/s.

5. Jr. Supervisor, Sr. Supervisor, Chief Conductor/Centre Incharge showing negligence / apathy in carrying out duties or aiding / abetting / allowing/instigating students to sue malpractice/s.

6. Or any other similar act/s of commission and or omission/s which may be considered as malpractices or lapses by the competent authority.

“Malpractice or lapse relating to examination” means and includes directly or indirectly committing or attempting to commit or threatening to commit any act of unfair means, fraud or undue influence with a view to obtaining wrongful gain for himself/herself or for any other person or causing wrongful loss to other person/s omitting to do what he/she is bound to do as duties.

‘College’ means, constituent or affiliated college or recognised institution of a University.

Investigating Committee: The Committee appointed by the Board of Examinations shall investigate the cases of malpractices used and/or lapses committed by the paper-setters, examiners, moderators, referees, teachers or any other persons connected with the conduct of examinations at the University examinations.

Procedure for Investigation: The cases of alleged use of unfair means or lapses committed by the papers-setters, examiners, moderators, referees, teacher or any other persons connected with the conduct of examinations, reported to the University/College/Institution shall be scrutinised by the concerned Officer/Incharge of the sub-Section/Unit to which the case is primarily pertained at the Examination Section of the University/College/Institution, who will

collect preliminary information to find out whether there is a prima-facie case so as to fix up primary responsibility for framing a charge-sheet and then shall submit the said case with his primary report to the concerned competent authority. If the competent authority is satisfied that there is a prima-facie case, it shall place the same before the Unfair Means Inquiry Committee for further investigation. The concerned Officer of the Sub-Section/ Unit through which the case has originated or the case is pertaining to, shall be the Presenting Officer of the case before the Inquiry Committee, Police Authorities and Court of Justice and shall deal with the case till it is finally disposed off.

The Competent Authority or the Officer authorised by it on its' behalf, shall inform the implicated person (person-setter, examiner, moderator, referee, teacher or any other person connected with the conduct of examination) in writing about the act of malpractices used and alleged or lapses committed by him/her at the examination and shall ask him/her to show cause as to why the charge/s levelled against him/her should not be held as proved and why the punishment stipulated in the Show Cause Notice should not be inflicted on him/her.

The concerned person be asked to appear before the Inquiry Committee on a day, time and place fixed for meeting, with written reply/explanation to the show cause notice served on him/her and charge levelled against him/her therein. The concerned person/himself/herself only shall present his/her case before the committee.

The documents that are being taken into consideration or to be relied upon for the purpose of proving charge/s against the concerned person shall be shown to him/her by the Inquiry Committee if he/she presents himself/herself before the Committee. The evidence, if any, should be recorded in the presence of the delinquent.
Reasonable opportunity, including oral hearing, shall given to the concerned person in his/her defence before the Committee. The reply/explanation given to the show cause notice shall also be considered by the Committee before making the final report/recommendation.

The Committee should follow the above procedure in the spirit of principle of natural justice.

If the concerned person fails to appear before the Committee on the day, time and place fixed for the meeting, he/she be given one more opportunity to appear before the committee in his/her defence. If, even after offering two chances, the concerned person fails to appear before the Committee, the Committee shall take decision in his/her case in his/her absence on the basis of whatever evidences/documents which are available before it and the same shall be binding on the concerned implicated person.

The Committee shall submit its report to the concerned competent authority along with its recommendations regarding punishment to be inflicted on the concerned person or otherwise.

Punishment:- The competent authority, after taking into consideration the report of the Committee, shall pass such orders as it deems fit, including granting the implicated person

benefit of doubt, issuing warning or exonerating him/her from the charge/s and shall inflict any one or more of the following punishments on the implicated person found guilty of using malpractice/s or committing lapses at the examination.

Declaring disqualified the concerned paper-setter, examiner, moderator, referee, teacher or any other person connected with the conduct of examination, from any examination work either permanently or for a specific period.

Imposing fine: If the concerned person fails to pay the fine within a stipulated period, the Competent Authority may impose on such a person additional punishment / penalty as it may deem fit.

Referring his/her case to the concerned disciplinary authorities for taking such disciplinary action as deemed fit as per the rules governing his/her service conditions.

The competent authority or the Officer authorized in this behalf, shall inform the concerned person of the decision taken in his / her case and the punishments imposed on him/her.

An appeal made within 30 days of imposition of the punishment, other than the punishment referred above, shall lie with the Board of Examinations if the case is pertaining to the University examination or with the Management of the College or Institution, if the case is pertaining to the college/institutions examination and their decision in the appeal shall be final and binding.

The Competent Authority shall supply a typed copy of the relevant extract of the fact-finding report of the Inquiry Committee, as well as the documents relied upon (if not strictly confidential), pertaining to his/her case to the appellant/petitioner, if applied for in writing.

The court matters in respective cases of malpractices/lapses should be dealt with by the respective competent authority.

As far as possible the quantum of punishment should be prescribed category-wise as hereunder:

The competent authority, may impose a fine on the concerned person, if declared guilty, in addition to the above mentioned punishment.

The competent authority, may report the case of the concerned implicated person to the appropriate Police Authorities as per the provision of Maharashtra Act No. XXXI of 1982.

13.0 Disability Rules: MGM Institute of Health Sciences guidelines will be followed (Appendix IX of MGMIHS guidelines for conducting written examination for students with disability). **Annexure III**

14.0 Period and other conditions for practical training

(1) After having appeared in Part-II examination for the Diploma in Pharmacy held by an approved Examining Authority a candidate shall be eligible to undergo practical training in one or more of the following institutions namely:

(i) Hospitals/Dispensaries run by Central /State Governments.

(ii) A pharmacy licensed for retail sale of drugs under the Drugs and Cosmetics Rules, 1945 having the services of registered pharmacists.

(iii) Hospital and Dispensary other than those specified in sub-regulation (i) above for the purpose of giving practical training shall have to be recognized by Pharmacy Council of India on fulfilling the conditions specified in Appendix A (PCI Appendix-C) to ER 2020.

(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.

15.0 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 B (PCI Appendix-D) to ER 2020.

(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.

16.0 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 Form and thereafter hand over both the second copy and the third copy to the trainee. This Contract Form, completed in all respects, shall be regarded as a certificate of having successfully completed the course of Diploma in Pharmacy (Part- III).

17.0 Award of Diploma Certificate

A certificate of Diploma in Pharmacy shall be granted by the examining authority to a successful candidate on producing certificates of having passed the Diploma in Pharmacy Part I and Part II and satisfactory completion of practical training for Diploma in Pharmacy (Part-III).

18.0 Scope of Pharmacy Council of India Rules

The MGMIHS shall adopt and apply the rules, prescribed by the Pharmacy Council India, for admission to the Pharmacy Course/ programme, admission to the examinations, passing the examination etc., from time to time.

Resolution No. 3.33 of Academic Council (AC-49/2024):

Resolved to conduct Part-III Training Program of S.Y.D.Pharm. students at MGM Hospitals (Kamothe/CBD Belapur /Vashi) for giving them exposure of all the aspects related to working of Pharmacy in a Hospital for the purpose of fulfilling the mandatory requirement laid down by PCI, to be applicable for students admitted in academic year 2023-24 onwards. **[ANNEXURE-26].**

Table – II

Diploma in Pharmacy (Part II)

	Number of hours		
Subject	**Theory**	**Practical**	**Tutorial**
Pharmacology	75	50	25
Community Pharmacy & Management	75	75	25
Biochemistry & Clinical Pathology	75	50	25
Pharmacotherapeutics	75	25	25
Hospital & Clinical Pharmacy	75	25	25
Pharmacy Law & Ethics	75	--	25
Total	**450**	**225**	**150**

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.

Annexure 7: Practical Training, ER-2020 D.Pharm program, Page 8

Practical Training: The goal of the practical training for the students is to provide a real-time, supervised experience on the professional tasks emphasised in their course of study. Further, it helps them to apply their acquired knowledge and skills in the professional working environment. The practical training intensively prepares the students with adequate competencies and qualifications required for the career opportunity in the future.

Thus, the ER 2020 D.Pharm syllabus is designed to nurture the students in all the three domains of Bloom's Taxonomy viz. cognitive (knowledge), affective (attitude) and psychomotor (skills). Further, it also provides ample of scope to the students for different learning styles viz. visual, auditory and kinaesthetic, i.e., 'see, hear and do'.

The summary of the curriculum, courses and other activities and their metrics across the ER-2020 D.Pharm program (Part I, II & III) are given here.

Criteria	Metrics
Number of subject areas (considering both theory & practical together)	11
Number of theory courses	11
Number of practical courses	10
Number of theory hours	825
Number of practical hours	600
Number of practical training hours	500
Number of tutorial hours	275
Number of course outcomes for theory courses	45
Number of course outcomes for practical courses	40
Number of courses which have given assignments	9
Number of assignment topics given	75
Number of assignments reports each student shall submit	27
Number of courses which have field visit	5
Number of field visit reports each student shall submit	9
Number of professional competencies	10

MGM School of Pharmacy
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D. PHARM CURRICULUM

INTERNAL ASSESSMENT GUIDELINES

Sessional Exams

There shall be three periodic sessional (internal assessment) examinations during each academic year. The duration of the sessional exam shall be 90 minutes. The highest aggregate of any two performances shall form the basis of calculating the sessional marks.

Table V : Theory Sessional Examination: 40 marks

Exam Pattern for Theory Sessional Examination				
Question & marks	Long Answers (5marks)	Short Answers (3 marks)	MCQ (1 mark)	Total (40 marks)
No of questions to attempt	3	5	10	15+15+10=40
Optional questions	1	1	0	
Note in Q Paper	Answer 3 out of 4	Answer 5 out of 6	Answer all	
Internal assessment: The marks secured by the students out of the total 40 shall be reduced to 20 in each sessional, and then the internal assessment shall be calculated based on the best two averages for 20 marks.				

Table VI : Practical Sessional Examination: 80 marks

Exam Pattern for Practical Sessional Examination					
Question	Synopsis	Experiments	Viva voce	Practical Record Maintenance	Total
Marks	10	50	10	10	80
Internal assessment: The marks secured by the students out of the total 80 shall be reduced to 10 in each sessional, and then the internal assessment shall be calculated based on the best two averages for 10 marks. Other 10 marks shall be awarded as per details given below.					
Actual performance in the sessional examination = 10 marks Assignment marks (Average of three) = 5 marks* Field Visit Report marks (Average for the reports) = 5 marks$ --- Total = 20 marks *, $ Only for the courses given with both assignments and field visit/s					

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D. PHARM CURRICULUM

UNIVERSITY EXAMINATION ASSESSMENT GUIDELINES

The examination shall be conducted as per the scheme given by PCI in Education Regulation 2020. The duration of the exam shall be 3 hours.

Table VII: Theory and Practical University Examination: 80 marks

Exam Pattern for Theory University Examination				
Question & marks	Long Answers (5marks)	Short Answers (3 marks)	MCQ (1 mark each)	Total (40 marks)
No of questions to attempt	6	10	20	30+30+20=80
Optional questions	1	1	0	
Note in Q Paper	Answer 6 out of 7	Answer 10 out of 11	Answer all 20	

Exam Pattern for Practical University Examination				
Question	Synopsis	Experiments	Viva voce	Total
Marks	10	60	10	80

Resolution No. 3.25.a of Academic Council (AC-50/2024):

Resolved to approve Blue Print for S Y D.Pharm. **[ANNEXURE-19B]**

MGM SCHOOL OF PAHRMACY

Annexure-19B of AC-50/2024

Program Name: Diploma in Pharmacy

Year: Second Year

Course Title: Pharmacology – Theory (PGT)

Course Code: ER20-21T

Unit No	Unit Title	Teaching Hours	Distribution of Theory Marks			
			R Level	U Level	A Level	Total Marks
1	General Pharmacology	10	3	5	1	9
2	Drugs Acting on the Peripheral Nervous System	11	3	5	3	11
3	Drugs Acting on the Eye	02	2	-	-	02
4	Drugs Acting on the Central Nervous System	08	3	5	3	11
5	Drugs Acting on the Cardiovascular System	06	5	3	1	09
6	Drugs Acting on Blood and Blood Forming Organs	04	1	3	-	04
7	Definition, classification, pharmacological actions, dose, indications and contraindications of Bronchodilators, Expectorants, Anti-tussive agents, Mucolytic agents	02	3	-	-	03
8	Drugs Acting on the Gastro Intestinal Tract	05	-	5	1	06
9	Drugs Acting on the Kidney	02	-	3	1	04
10	Hormones and Hormone Antagonists	08	5	3	2	10
11	Autocoids	03	1	3	-	04
12	Chemotherapeutic Agents	12	5	5	3	13
13	Biologicals	02	2	-	-	02
Total		**75 Hours**	**33**	**40**	**15**	**88 Marks**

Resolution No. 3.37 of Academic Council (AC-49/2024):

Resolved to approve:
(i) Examination scheme D.Pharm to be effective from academic year 2024- 25 **[ANNEXURE - 29B]**.

रजिस्ट्री सं. डी.एल.- 33004/99 REGD. No. D. L.-33004/99

भारत का राजपत्र
The Gazette of India

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असाधारण
EXTRAORDINARY

भाग III—खण्ड 4
PART III—Section 4

प्राधिकार से प्रकाशित
PUBLISHED BY AUTHORITY

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भारतीय भेषजी परिषद

अधिसूचना

नई दिल्ली, 9 अक्टूबर, 2020

फार्मेसी (भेषजी) में डिप्लोमा कोर्स के लिए शिक्षा विनियम, २०२०

भेषजी अधिनियम, १९४८ की धारा १० के तहत विनियम।

(भारत सरकार एवं स्वास्थ्य एवं परिवार कल्याण मंत्रालय के पत्रांक **जेड**–28020/59/2019-**ए एच एस/एफ टी एस**–8012809 **दिनांक** 7.10.2020) द्वारा अनुमोदित एवं भारतीय भेषजी परिषद् द्वारा प्रकाशित)

सं. १४-५५/२०२०- भा.भे.परि. - भेषजी अधिनियम, १९४८ (१९४८ का ८) की धारा १० द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए भारतीय भेषजी परिषद केन्द्रीय सरकार के अनुमोदन से निम्नलिखित संशोधन करती है, अर्थातः-

अध्याय - १

१. संक्षिप्त शीर्षक और प्रारंभः-

(१) इन विनियमों को फार्मेसी (भेषजी) में डिप्लोमा कोर्स के लिए शिक्षा विनियम, २०२० के नाम से जाना जाएगा।

(२) ये राजपत्र में प्रकाशन की तारीख से प्रवृत्त होंगे।

२. फार्मासिस्ट के लिए योग्यताः-

फार्मेसी में डिप्लोमा (भाग-I और भाग-II) में उत्तीर्ण और फार्मेसी में डिप्लोमा (भाग-III) का संतोषजनक समापन फार्मासिस्ट के रूप में पंजीकरण के लिए आवश्यक न्यूनतम योग्यता है।

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.

Table – IV
DIPLOMA IN PHARMACY (PART-I) EXAMINATION

	Maximum marks for Theory			**Maximum marks for Practicals**		
Subject	**Examination**	***Sessional**	**Total**	**Examination**	***Sessional**	**Total**
Pharmaceutics	80	20	100	80	20	100
Pharmaceutical Chemistry	80	20	100	80	20	100
Pharmacognosy	80	20	100	80	20	100
Human Anatomy & Physiology	80	20	100	80	20	100
Social Pharmacy	80	20	100	80	20	100
			500	**+ 500 = 1000**		

*Internal assessment

Table – V

DIPLOMA IN PHARMACY (PART-II) EXAMINATION

	Maximum marks for Theory			**Maximum marks for Practicals**		
Subject	**Examination**	***Sessional**	**Total**	**Examination**	***Sessional**	**Total**
Pharmacology	80	20	100	80	20	100
Community Pharmacy & Management	80	20	100	80	20	100
Biochemistry & Clinical Pathology	80	20	100	80	20	100
Pharmacotherap eutics	80	20	100	80	20	100

Hospital and Clinical Pharmacy	80	20	100	80	20	100
Pharmacy law & Ethics	80	20	100	-	-	-
			600	**+400**	**+100**	**= 1100**

*Internal assessment

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 subjects in a single attempt.

14. Eligibility for promotion to Diploma in Pharmacy (Part-II)-

All candidates who have appeared for all the subjects and passed the Diploma in Pharmacy Part-I examination are eligible for promotion to the Diploma in Pharmacy Part-II class. However failure in more than two subjects shall debar him/her from promotion to Diploma in Pharmacy Part II class.

15. Improvement of sessional marks-

The candidates who wish to improve sessional marks can do so, by appearing in two additional sessional examinations during the next academic year. The average score of the two examinations shall be the basis for improved sessional marks in theory as well as in practical. Marks awarded to a candidate for day to day assessment in the practical class cannot be improved unless he/she attends a regular course of study again.

महाराष्ट्र राज्य तंत्र शिक्षण मंडळ.

(स्वायत्त) (ISO: ९००१:२०१५) (ISO/IES: २७००१-२०१३)

शासकीय तंत्रनिकेतन इमारत, चौथा मजला, ४९, खेरवाडी, बांद्रा (पूर्व), मुंबई - ४०० ०५१.

दूरध्वनी क्र.: ०२२-६२५४२१५१ / १५२

Email : secretary@msbte.com Web : www.msbte.org.in

जा.क्र.मरातंशिमं/का-५०/फार्मसी/२०२१/ 839 | दिनांक: 17 DEC 2021

परिपत्रक

प्रति,

प्राचार्य,
औषधनिर्माणशास्त्र हा पदविका अभ्यासक्रम
राबविणा-या मंडळाशी संलग्नीत सर्व संस्था.

विषय: औषधनिर्माणशास्त्र या पदविका अभ्यासक्रमाच्या नविन सुधारित पाठ्यक्रमाबाबत.

संदर्भ: १. भारतीय राजपत्र क्र. CG-DL-E-17102020-222534 dt. 16.10.2020

२. Pharmacy Council of India यांचे दि.२३.०९.२०२१ रोजीचे पत्र क्र. १४-५५/२०२१-PCI(A) / ३६४२-४५

३. मंडळाचे परिपत्रक क्र. मरातंशिमं/का-५०/अभ्यासक्रम/२०२१/६४२५ दि. ३०.०९.२०२१

उपरोक्त संदर्भ क्र. १ अन्वये भारताचे राजपत्र (Gazzette of India) नुसार Education Regulation २०२० for Diploma Courses in Pharmacy दि. ०९.१०.२०२० रोजी प्रसिद्ध करण्यात आले होते. तदनंतर सदर राजपत्राच्या अंमलबजावणीकरिता Pharmacy Council of India व्दारे दि. २३.०९.२०२१ रोजी संदर्भ क्र. २ नुसार कळविण्यात आले होते.

त्यानुसार औषधनिर्माणशास्त्र या पदविका अभ्यासक्रमाकरिता सुधारित पाठ्यक्रम Pharmacy Council of India च्या ER-२०२० प्रमाणे शैक्षणिक वर्ष २०२१-२२ पासून प्रथम वर्षाकरिता लागू करण्यात आला आहे. तदनंतर व्दितीय वर्षाकरिता नविन पाठ्यक्रम शैक्षणिक वर्ष २०२२-२३ पासून लागू करण्यात येईल. संदर्भ क्र. ३ अन्वये मंडळाने महत्वाचे परिपत्रक प्रसिद्ध करुन सदर नविन अभ्यासक्रमाच्या पाठ्यक्रमाची अंमलबजावणी संस्था स्तरावर करण्याचे निर्देश दिलेले आहेत.

उपरोक्त विषयाच्या अनुषंगाने कळविण्यात येते की, मंडळाने सदर अभ्यासक्रमाची परीक्षा घेण्याकरिता Teaching & Examination Scheme तयार केलेली असून ही 'J' स्कीम म्हणून राबविण्यात येईल. औषधनिर्माणशास्त्र या पदविका अभ्यासक्रमाची 'J' स्कीम अंतर्गत Teaching & Examination Scheme व Pharmacy Council of India व्दारे प्रसिद्ध करण्यात आलेला पाठ्यक्रम मंडळाच्या संकेत स्थळावर प्रसिद्ध करण्यात आलेला आहे, याची नोंद घ्यावी. सदर बाब विद्यार्थी व संबंधित अध्यापक यांच्या निदर्शनास आणून देण्याची जबाबदारी संस्थाप्रमुखांची राहील.

(डॉ. महेंद्र रा. चितलांगे)
सचिव
म. रा. तंत्र शिक्षण मंडळ, मुंबई.

प्रत:

१. मा. संचालक, म. रा. तंत्र शिक्षण मंडळ, मुंबई यांना माहितीसाठी.
२. उपसचिव, म. रा. तंत्र शिक्षण मंडळ, विभागीय कार्यालय, मुंबई, पुणे, नागपूर व औरंगाबाद यांना माहितीसाठी.
३. उपसचिव, (निकाल / प्रश्न पत्रिका विभाग), म.रा.तं.शि.मंडळ, मुंबई यांना आवश्यक कार्यवाहीकरिता

MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION, MUMBAI

TEACHING AND EXAMINATION SCHEME FOR POST H.S.C. DIPLOMA COURSES.

COURSE NAME: DIPLOMA IN PHARMACY

COURSE CODE : PH

DURATION OF COURSE: 2 YEARS — **WITH EFFECT FROM 2021-22**

YEAR : FIRST — **DURATION : 32 WEEKS**

PATTERN : FULL TIME - YEARLY — **SCHEME : J**

S. N.	Course Title	Course Abbreviation	Course Code	Teaching Scheme			Examination Scheme												Grand Total
							Theory							Practical					
							Exam Duration in Hrs.	TH		TM		Total		PR		PM		Total	
				L	T	P		Max Marks	Min Marks	Max Marks	Min Marks	Max Marks	Min Marks	Max Marks	Min Marks	Max Marks	Min Marks	Max Marks	Min Marks	
1	PHARMACEUTICS- Theory	PHT	20111	3	1	--	3	80	00	20*	00	100	40	--	--	--	--	--	--	100
2	PHARMACEUTICS- Practical	PHP	20051	--	--	3	3	--	--	--	--	--	--	80#	00	20*	00	100	40	100
3	PHARMACEUTICAL CHEMISTRY- Theory	PCT	20112	3	1	--	3	80	00	20*	00	100	40	--	--	--	--	--	--	100
4	PHARMACEUTICAL CHEMISTRY- Practical	PCP	20052	--	--	3	3	--	--	--	--	--	--	80#	00	20*	00	100	40	100
5	PHARMACOGNOSY- Theory	PYT	20113	3	1	--	3	80	00	20*	00	100	40	--	--	--	--	--	--	100
6	PHARMACOGNOSY- Practical	PYP	20053	--	--	3	3	--	--	--	--	--	--	80#	00	20*	00	100	40	100
7	HUMAN ANATOMY & PHYSIOLOGY- Theory	HPT	20114	3	1	--	3	80	00	20*	00	100	40	--	--	--	--	--	--	100
8	HUMAN ANATOMY & PHYSIOLOGY- Practical	HPP	20054	--	--	3	3	--	--	--	--	--	--	80#	00	20*	00	100	40	100
9	SOCIAL PHARMACY- Theory	SPT	20115	3	1	--	3	80	00	20*	00	100	40	--	--	--	--	--	--	100
10	SOCIAL PHARMACY- Practical	SPP	20055	--	--	3	3	--	--	--	--	--	--	80#	00	20*	00	100	40	100
			Total	**15**	**5**	**15**	--	**400**	--	**100**	--	**500**	--	**400**	--	**100**	--	**500**	--	**1000**

Student Contact Hours Per Week: **35 Hrs.** Medium of Instruction: **English**

Theory and practical periods of 60 minutes each. Total Marks **: 1000**

Abbreviations: TH-Theory, PR-Practical, TM- Theory Sessional PM- Practical Sessional, L - Lectures, T - Tutorial, P – Practical

External Assessment

* Internal Assessment refer guidelines for theory and practical sessional examinination given in "Syllabus framed under Regulation 7 List of prescribed equipments and apparatus under Appendix-A of The Education Regulations, 2020 For Diploma Course in Pharmacy"

- **Candidate shall be declared as "Detained" in case of not fullfilling the condition in regulation 10 of Education Regulations, 2020 for Diploma Course in Pharmacy and / or obtaining Zero marks in the "PM" part of practical of any course.**

MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION MUMBAI

MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION, MUMBAI

TEACHING AND EXAMINATION SCHEME FOR POST H.S.C. DIPLOMA COURSES.

COURSE NAME: DIPLOMA IN PHARMACY

COURSE CODE : PH

DURATION OF COURSE: 2 YEARS — **WITH EFFECT FROM 2021-22**

YEAR : SECOND — **DURATION : 32 WEEKS**

PATTERN : FULL TIME - YEARLY — **SCHEME : J**

S. N.	Course Title	Course Abbreviation	Course Code	Teaching Scheme			Examination Scheme													Grand Total
							Theory							Practical						
							Exam Duration in Hrs.	TH		TM		Total		PR		PM		Total		
				L	T	P		Max Marks	Min Marks	Max Marks	Min Marks	Max Marks	Min Marks	Max Marks	Min Marks	Max Marks	Min Marks	Max Marks	Min Marks	
1	PHARMACOLOGY- Theory	PGT	20221	3	1	--	3	80	00	20*	00	100	40	--	--	--	--	--	--	100
2	PHARMACOLOGY- Practical	PGP	20056	--	--	2	3	--	--	--	--	--	--	80#	00	20*	00	100	40	100
3	COMMUNITY PHARMACY & MANAGEMENT- Theory	CMT	20222	3	1	--	3	80	00	20*	00	100	40	--	--	--	--	--	--	100
4	COMMUNITY PHARMACY & MANAGEMENT- Practical	CMP	20057	--	--	3	3	--	--	--	--	--	--	80#	00	20*	00	100	40	100
7	BIOCHEMISTRY & CLINICAL PATHOLOGY- Theory	BCT	20223	3	1	--	3	80	00	20*	00	100	40	--	--	--	--	--	--	100
8	BIOCHEMISTRY & CLINICAL PATHOLOGY- Practical	BCP	20058	--	--	2	3	--	--	--	--	--	--	80#	00	20*	00	100	40	100
5	PHARMACOTHERAPEUTICS- Theory	PTT	20224	3	1	--	3	80	00	20*	00	100	40	--	--	--	--	--	--	100
6	PHARMACOTHERAPEUTICS- Practical	PTP	20059	--	--	1	3	--	--	--	--	--	--	80#	00	20*	00	100	40	100
9	HOSPITAL & CLINICAL PHARMACY- Theory	HCT	20225	3	1	--	3	80	00	20*	00	100	40	--	--	--	--	--	--	100
10	HOSPITAL & CLINICAL PHARMACY- Practical	HCP	20060	--	--	1	3	--	--	--	--	--	--	80#	00	20*	00	100	40	100
11	PHARMACY LAW & ETHICS- Theory	PLT	20226	3	1	--	3	80	00	20*	00	100	40	--	--	--	--	--	--	100
			Total	**18**	**6**	**9**		**480**	**--**	**120**	**--**	**600**	**--**	**400**	**--**	**100**	**--**	**500**	**--**	**1100**

Student Contact Hours Per Week: **33 Hrs.** Medium of Instruction: **English**

Theory and practical periods of 60 minutes each. Total Marks : **1100**

Abbreviations: TH-Theory, PR-Practical, TM- Theory Sessional PM- Practical Sessional, L - Lectures, T - Tutorial, P – Practical

External Assessment, * Internal Assessment refer guidelines for theory and practical sessional examinination given in "Syllabus framed under Regulation 7, List of prescribed equipments and apparatus under Appendix-A of The Education Regulations, 2020 For Diploma Course in Pharmacy"

- **Candidate shall be declared as "Detained" in case of not fullfilling the condition in regulation 10 of Education Regulations, 2020 for Diploma Course in Pharmacy and / or obtaining Zero marks in the "PM" part of practical of any course.**

MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION MUMBAI

PATTERN FOR ANNUAL PRACTICAL EXAMINATION(ER 2020)

Class: F.Y. D. Pharm **Subject: Pharmaceutics**

Max marks: 80 **Time: 3 hours**

Q.1 Write synopsis on the following: **(10)**

Q.2 Prepare, evaluate and submit following preparation with proper labelling: **(20)**

Minor experiment (From prescribed list)

Q.3 Prepare, evaluate and submit following preparation with proper labelling: **(40)**

Major experiment (From prescribed list)

Q.4 Viva voce (Pertaining to the practical curriculum) **(10)**

Instructions

Evaluation of the students is carried out by both external and internal examiner on equal marks distribution. Marks distribution shall be as follows:

Internal Examiner (40 marks)

Major experiment Q.3 (40 marks)

External examiner (40 marks)

Synopsis Q.1 (10 marks)
Minor experiment Q.2 (20 marks)
Viva-voce Q.4 (10 marks)

PATTERN FOR ANNUAL PRACTICAL EXAMINATION(ER 2020)

Class: F.Y. D. Pharm **Subject: Pharmaceutics**

Max marks: 80 **Time: 3 hours**

Q1. Synopsis can consist of 5 short questions pertaining to the theory of any category of the preparation. (5X2=10)

a) Definition/ Explain with classification. e.g., Lotion
b) Principle of method of preparation, it includes the role of ingredients, the explanation of formulation variables e.g., Co-solvency
c) Explain following evaluation parameter e.g., Viscosity, Clarity, Disintegration time, etc.

OR

Synopsis can consist of 10 short questions pertaining to the theory of any category of the preparation. (10x1=10)

a) Define

b) Classification

c) Category

c) Storage condition, etc.

Q.2 List of Minor Experiments

1) Liquid Orals
2) Parental preparations
3) Ophthalmic preparation
4) Capsules
5) Gel
6) Dusting powder
7) Suspensions

Parameters for evaluation

Liquid Orals/Parental preparations/Ophthalmic preparation/Gel/Dusting powder/Suspensions (20)

a. Calculation of formulation (3)
b. 1. Container (1)
2. Liner (1)
c. Prescribed volume of the preparation (1)

d. Quality of the preparation

1. Color /Odor/texture (3)
2. Particulate matter (1)

e. Labeling

1. Presentation/ size of the label (2)
2. Strength/ percentage content (1)
3. Storage (1)
4. Directions of use, dose (1)
5. Batch Mfg. Record

(1)

f. Good Laboratory Practices (4)

Capsules

a. Calculations of formula (4)
b. Calculation of displacement value (2)
c. Filling and sealing (2)
d. Weight uniformity (on 5 capsules) (2)
e. Labeling

i. Presentation/ Size of the label (2)
ii. Strength/ Percentage content (1)
iii. Storage (1)
iv. Direction of use, dose (1)
v. Batch Mfg. Record (1)

f. Good Laboratory Practices
(4)

Q 3. List of Major Experiments

1. Formulation and evaluation of granules ready for compression

2. Formulation and evaluation of ointments/ creams/ cosmetics

3. Emulsions

4. Liniments

5. Effervescent granules

Parameters for Evaluation

1. Formulation and evaluation of granules/effervescent granules ready for compression (40)

a. Calculation of formula (8)
Calculation of fines and lubricating agents (4)
b. Quality of Granules
i. Fragility (4)
ii. Uniformity (4)
iii. Properly dried (4)
c. Labeling
i. Presentation/ Size (2)
ii. Strength/ Percentage content (2)
iii. Storage (2)
iv. Direction of use, Dose (2)
v. Batch Mfg. Record (2)

d. Good Laboratory Practices (6)

2. Formulation and evaluation of Creams/ Cosmetics/Emulsions/Liniments

a. Calculation of formula (4)
b. 1. Container (1)
2. Liner (1)
c. Quality of the preparation
1. Clarity/ colour/ odour/ grittiness (5)
2. Consistency (flow property) (5)
3. Spreading (5)
4. Stickiness (5)
d. Labeling
i. Presentation/ size of the label (2)
ii. Strength/ percentage content (2)
iii. Storage (2)
iv. Direction of use, dose (2)
v. Batch Mfg. Record (2)
f. Good Laboratory Practices (4)

Q 4. Viva Voce **(10 marks)**

PATTERN FOR SESSIONAL EXAMINATION (ER 2020)

Class: F.Y. D. Pharm **Subject: Pharmaceutics**

Max marks: 80 **Time: 3 hours**

Proposed Specifications for Question Paper Pattern for the Sessional Practical Examination for the.....

Subject: Pharmaceutics (Sub Code: 20051)

Sessional practical exam shall be conducted for **80 marks**, to be converted to **10 marks** in each sessional and then the internal assessment shall be calculated based on the best two averages for 10 marks from the sessional and other 10 marks shall be awarded as per the following:

Sr. No.	Details	Marks
1	Actual performance in the sessional examination	10
2	Assignment marks (which should be average of three assignment marks)	05
3	Field visit	05

Practical sessional examination shall be based on the pattern same as annual practical examination with different marks distribution.

Marks Distribution (80 Marks)

The question paper for Sessional Practical Examination for the **Subject Pharmaceutics (20051)** can be formatted as per the scheme given below:

Sr. No.	Question	Marks	Time
1	Synopsis	10	20minutes
2 Experiments	i) Major	30	1 ½ hr
	ii) Minor	20	1 hr

3	Viva-voce	10	10 minutes
4	Practical Record Maintenance	10	
Total Marks		**80**	

PATTERN FOR ANNUAL PRACTICAL EXAMINATION (ER 2020)

Class: F.Y. D. Pharm **Subject: Pharmaceutical Chemistry**

Max marks: 80 **Time: 3 hours**

Q.1 Synopsis **(10)**

Q.2 Spotters **(10)**

Q.3 Minor experiment **(20)**

Q.4 Major experiment **(30)**

Q.5 Viva voce **(10)**

Instructions

Evaluation of the students is carried out by both external and internal examiner on equal marks distribution. Marks distribution shall be as follows:

Internal Examiner (40 marks)

Synopsis	Q.1 (10 marks)
Spotters	Q.2 (10 marks)
Minor experiment	Q.3 (20 marks)

External examiner (40 marks)

Major experiment	Q.4 (30 marks)
Viva-voce	Q.5 (10 marks)

PATTERN FOR ANNUAL PRACTICAL EXAMINATION (ER 2020)

Class: F.Y. D. Pharm **Subject: Pharmaceutical Chemistry**

Max marks: 80 **Time: 3 hours**

Q 1. Synopsis: Five questions may be asked, each carrying 2 marks (10)

Guidelines for questions to be asked (5×2):

a. One question to be based on Volumetric analysis (Standardisation of solutions employed in volumetric analysis)

OR

Question based on Assay of specified compound (principle and/or procedure)

b. One question to be based on any one Limit test from the prescribed list (principle, reactions and procedure)

OR

Identification tests for Cations and Anions

c. One question to be based on the tests for detection of elements (principle and/or procedure with reactions): For elements like Nitrogen, Sulphur and Halogen…

OR

Theory and Procedure for Sodium Fusion Test/Lassaigne's Test

d. One question on Structure and/or test for different Functional groups (Two functional groups)

OR

Explain the following tests/Chemical reactions: Diazotisation, Tollen's test, Barfoed's test, Caro's test, Nitration, Hydrolysis etc. (Two tests)

e. Give Structure and Therapeutic Uses of drugs/Give Category and Structure of the drugs named (Two drugs)

OR

Give chemical tests for identification for given drugs (Two drugs)

OR

Give the reaction and/or Procedure for the Synthesis/Preparation of _____ and calculate the Theoretical Yield for the synthesis of compound from _____ grams of _____.

Q.2. Spotters (2×5): (10)

Small cartons of marketed pharmaceutical preparations having popular brand names may be kept as spotters; Students may be asked to write the contents and therapeutic category or allied question/s on that preparation

Q. 3 Minor Experiment: (20)

Limit Test (from the list given in the syllabus)

- Principle with reaction/s (06)
- Observation (06)
- Conclusion (06)
- Good laboratory practices (02)

OR

Identification tests for Cations and Anions (as per I.P.)

- Physical tests (03)
- Tests for Cation (06)
- Tests for anion (06)
- Conclusion (03)
- Good laboratory practices (02)

OR

Identification tests for Organic Pharmaceuticals (from the list given in the ER 2020 practical syllabus)

- Description and solubility (06)
- Identification tests (10)
- Conclusion (02)
- Good laboratory practices (02)

OR

Preparation of given Organic compound

- Principle (03)
- Reporting Practical Yield (08)
- Calculating Percentage Yield (04)
- Melting point/range (03)
- Good laboratory practices (02)

Q.4. Major Experiment: (30)

A) Systematic Qualitative analysis: From the compounds analysed by students in regular practical or allied compounds

- Preliminary tests (05)

-Type determination (03)

- Physical constant (04)

- Elemental analysis (05)

- Functional group determination (05)

- Literature survey and compound identification (02)

- Confirmatory tests and derivative preparation (02)

- Conclusion (02)

- Good laboratory practices (02)

OR

B) Volumetric analysis:

I)Standardization of solutions employed:

- Observation (02)

- Observation table (minimum 3 titrations) (05)

- Calculation of Normality (02)

- Conclusion (01)

II) Assay/determination of the percentage W/V for given solution of specified sample (from the list given in the ER 2020 practical syllabus)

- Observation (02)

- Observation table (minimum 3 titrations) (07)

- Calculation of percentage W/V (07)

- Conclusion (02)

- Good laboratory practices (02)

Q 5. Viva-voce **(10)**

PATTERN FOR SESSIONAL PRACTICAL EXAMINATION (ER 2020)

Class: F.Y. D. Pharm **Subject Pharmaceutical Chemistry**

Max marks: 80 **Time: 3 hours**

Sessional practical exam shall be conducted for **80 marks**, to be converted to **10 marks** in each sessional and then the internal assessment shall be calculated based on the best two averages for 10 marks from the sessional and other 10 marks shall be awarded as per the following:

Sr. No.	Details	Marks
1	Actual performance in the sessional examination	10
2	Assignment marks (which should be average of three assignment marks)	10

Practical sessional examination shall be based on the pattern same as annual practical examination with different marks distribution.

Marks Distribution (80 Marks)

The question paper for **Sessional** Practical Examination for the **Subject Pharmaceutical chemistry (20052)** can be formatted as per the scheme given below:

Sr. No.	Question	Marks	Time
1	Synopsis	10	10 minutes
2 Experiments	i) Major	30	1 ½ hr
	ii) Minor	15	1 hr
	iii) Spotters	05	10 minutes
3	Viva-voce	10	10 minutes
4	Practical Record Maintenance	10	
Total Marks		**80**	

PATTERN FOR ANNUAL PRACTICAL EXAMINATION (ER 2020)

Class: F.Y. D. Pharm **Subject: Pharmacognosy**

Max marks: 80 **Time: 3 hours**

Q.1 Identify and describe given spots **(20)**

Q.2 Minor experiment **(20)**

Q.3 Major experiment **(30)**

Q.4 Viva voce (Pertaining to the practical curriculum) **(10)**

Instructions

Evaluation of the students is carried out by both external and internal examiner on equal marks distribution. Marks distribution shall be as follows:

Internal Examiner (40 marks)

Identify and describe given spots	Q.1 (20 marks)
Minor experiment	Q.2 (20 marks)

External examiner (40 marks)

Major experiment	Q.3 (30 marks)
Viva-voce	Q.4 (10 marks)

PATTERN FOR ANNUAL PRACTICAL EXAMINATION (ER 2020)

Class: F.Y. D. Pharm **Subject: Pharmacognosy**

Max marks: 80 **Time: 3 hours**

Q.1 Spotting: **(20)**

To identify and describe the unknown crude drug with the help of morphological characters. (10 spots can be given 10×2)

(Ispaghula, Senna, Coriander, Fennel, Cardamom, Ginger, Nutmeg, Black Pepper, Cinnamon, Clove, Ephedra, Rauwolfia, Gokhru, Punarnava, Cinchona, Agar)

Marks distribution

Each spot carries two marks and should include:

A) Official names (title name)
B) Biological source and family, synonyms
C) Chemical constituents (one main constituent)
D) Therapeutics uses

Q.2 Minor experiment (Physical and chemical tests) **(20)**

To identify the given unorganized powdered drug with the help of physical and chemical tests.

Marks distribution

a) Physical test - a) colour
b) odour
c)taste
d) solubility (4)

b) Chemical test

- Chemical test of respective crude drugs (13)

c) Result (1)

d) Good Laboratory Practices (2)

Q3) Major experiment (transverse section) (30)

To find the unknown crude drug with help of morphological and microscopical characters (Gross anatomical study of crude drug)

Following crude drugs should be covered: Ajwain, Datura, Cinnamon, Cinchona, Coriander, Ashwagandha, Liquorice, Clove, Curcuma, Nux vomica, Vasaka

Marks distribution –

A] Preparation of slide (15)

a. Whether section is thin or thick.
b. Whether section stain or unstained.
c. Way of mounting.
d. Spot viva (each point carries four marks)

B] Diagram of respective section (10)

a. Neat labeled diagram

b. Description of important microscopical characters. (Each point carries five marks)

C] Good Laboratory Practices (5)

Q4) Viva- voce (10)

PATTERN FOR SESSIONAL EXAMINATION (ER 2020)

Class: F.Y. D. Pharm **Subject: Pharmacognosy**

Max marks: 80 **Time: 3 hours**

Proposed Specifications for Question Paper pattern for the Sessional Practical Examination for the.....

Subject: Pharmacognosy (Sub Code: 20053)

Sessional practical exam shall be conducted for **80 marks**, to be converted to **10 marks** in each sessional and then the internal assessment shall be calculated based on the best two averages for 10 marks from the sessional and other 10 marks shall be awarded as per the following:

Sr. No.	Details	Marks
1.	Actual performance in the sessional examination	10
2.	Assignment marks (which should be average of three assignment marks)	05
3.	Field visit	05

Practical sessional examination shall be based on the pattern same as annual practical examination with different marks distribution.

Marks Distribution (80 Marks)

The question paper for Sessional Practical Examination for the **Subject Pharmacognosy (20053)** can be formatted as per the scheme given below:

Sr. No.	Question	Marks	Time
1	Spotting	10	20 minutes
2 Experiments	i) Minor	20	1 hr
	ii) Major	30	1 ½ hr
3	Viva-voce	10	10 minutes
4	Practical Record Maintenance	10	
Total Marks		**80**	

PATTERN FOR ANNUAL PRACTICAL EXAMINATION (ER2020)

Class: F.Y. D. Pharm **Subject: Human Anatomy & Physiology**

Max marks: 80 **Time: 3 hours**

Q.1 Identify and describe given spots **(20)**

Q.2 Minor experiment **(20)**

Q.3 Major experiment **(30)**

Q.4 Viva voce (Pertaining to the practical curriculum) **(10)**

Instructions

Evaluation of the students is carried out by both external and internal examiner on equal marks distribution. Marks distribution shall be as follows:

Internal Examiner (40 marks)

Identify and describe given spots	Q.1 (20 marks)
Minor experiment	Q.2 (20 marks)

External examiner (40 marks)

Major experiment	Q.3 (30 marks)
Viva-voce	Q.4 (10 marks)

PATTERN FOR ANNUAL PRACTICAL EXAMINATION (ER2020)

Class: F.Y. D. Pharm **Subject: Human Anatomy & Physiology**

Max marks: 80 **Time: 3 hours**

Q.1 Identify and describe given spots. **(20)**

For this purpose, ten specimens can be given and each spot carries two marks.
Identification of specimen - 1 mark
Description – 1 mark

A] BONES (3 bones from axial skeleton and 2 bones from appendicular skeleton)

Identification - 1 mark
Description (any two characteristics listed below) – 1 mark
For each bone description includes…..

1. Location of bone
2. Type of bone
3. Two characters of bone

B] MODELS (Identify the organs marked with arrows)

1. Typical animal cell
2. Digestive system
3. Respiratory system (Identification of organs – 1 mark)
4. Urinary system
5. Central nervous system
6. Eye or ear of human
7. L.S of heart of man (Two specific characters – 1 mark)
8. Male reproductive and female reproductive systems

C] T.S. of 1. Stomach
2. Kidney
3. Small intestine
4. Pancreas, etc.

Identification – 1 mark
Description – 1 mark

Q.2 Minor experiment (any one) **(20)**

1. Recording of blood clotting time
   OR
2. Recording of bleeding time
   OR
3. Haemoglobin estimation

NOTE: for minor experiment
Following points must be given by the students in practical examination

1. Principle of experiment (4)
2. Perform experiment (10)
3. Result of experiment (2)
4. Significance of experiment (2)
5. Good Laboratory Practices (2)

Q. 3 Major experiment (any one) **(30)**

1. Total R.B.C. point
2. Total W.B.C count
3. Differential leukocyte count (D.L.C)

Distribution of mark scheme for major experiment

1) Total red blood cell count (30)

1. Principle of experiment
2. Identification of RBC squares on the haemocytometer
3. Charging of squares with diluted blood
4. Counting of RBCs in five small squares .i.e. 125 smallest squares
5. Calculation of total RBC count
6. Result of total RBC count
7. Significance of experiment (conclusion of experiment)
8. Good Laboratory Practices

OR

2) Total white blood corpuscle count (30)

1. Principle of experiment
2. Identification of WBC squares on the haemocytometer
3. Charging of square with diluted blood

4. Counting of WBCs from four large square i.e. 64 smallest squares
5. Calculation of total WBC count
6. Result of total WBC count
7. Significance of experiment (conclusion of experiment)
8. Good Laboratory Practices

OR

3) Differential leucocyte count (30)

1. Preparation of blood smear
2. Staining of blood smear with suitable stain
3. Examination of stained blood film under oil immersion lens
4. Counting of different types of WBC from stained blood slide
5. Diagrams of different types of white blood corpuscles
6. Results in terms of percentage of different types of WBC
7. Conclusion or significance of experiment
8. Good Laboratory Practices

Q. 4 Viva –voce (10)

PATTERN FOR SESSIONAL EXAMINATION (ER 2020)

Class: F.Y. D. Pharm **Subject: Human Anatomy & Physiology**

Max marks: 80 **Time: 3 hours**

Proposed Specifications for Question Paper pattern for the Sessional Practical Examination for the.....

Subject: Human Anatomy and Physiology (Subject Code: 20054)

Sessional practical exam shall be conducted for **80 marks**, to be converted to **10 marks** in each sessional and then the internal assessment shall be calculated based on the best two averages for 10 marks from the sessional and other 10 marks shall be awarded as per the following:

Sr. No.	Details	Marks
1	Actual performance in the sessional examination	10
2	Assignment marks (which should be average of three assignment marks)	10

Practical sessional examination shall be based on the pattern same as annual practical examination with different marks distribution.

Marks Distribution (80 Marks)

The question paper for Sessional Practical Examination for the **Subject Human Anatomy and Physiology (20054)** can be formatted as per the scheme given below:

Sr. No.	Question	Marks	Time
1	Spotting	10	20 minutes
2 Experiments	i) Minor	20	1 hr
	ii) Major	30	1 ½ hr
3	Viva-voce	10	10 minutes
4	Practical Record Maintenance	10	
Total Marks		**80**	

PATTERN FOR ANNUAL PRACTICAL EXAMINATION (ER2020)

Class: F.Y. D. Pharm **Subject: Human Anatomy & Physiology**

Max marks: 80 **Time: 3 hours**

Q.1 Identify and describe given spots **(20)**

Q.2 Minor experiment **(20)**

Q.3 Major experiment **(30)**

Q.4 Viva voce (Pertaining to the practical curriculum) **(10)**

Instructions

Evaluation of the students is carried out by both external and internal examiner on equal marks distribution. Marks distribution shall be as follows:

Internal Examiner (40 marks)

Identify and describe given spots	Q.1 (20 marks)
Minor experiment	Q.2 (20 marks)

External examiner (40 marks)

Major experiment	Q.3 (30 marks)
Viva-voce	Q.4 (10 marks)

PATTERN FOR ANNUAL PRACTICAL EXAMINATION (ER2020)

Class: F.Y. D. Pharm **Subject: Human Anatomy & Physiology**

Max marks: 80 **Time: 3 hours**

Q.1 Identify and describe given spots. **(20)**

For this purpose, ten specimens can be given and each spot carries two marks.
Identification of specimen - 1 mark
Description – 1 mark

A] BONES (3 bones from axial skeleton and 2 bones from appendicular skeleton)

Identification - 1 mark
Description (any two characteristics listed below) – 1 mark
For each bone description includes…..

1. Location of bone
2. Type of bone
3. Two characters of bone

B] MODELS (Identify the organs marked with arrows)

1. Typical animal cell
2. Digestive system
3. Respiratory system (Identification of organs – 1 mark)
4. Urinary system
5. Central nervous system
6. Eye or ear of human
7. L.S of heart of man (Two specific characters – 1 mark)
8. Male reproductive and female reproductive systems

C] T.S. of 1. Stomach
2. Kidney
3. Small intestine
4. Pancreas, etc.

Identification – 1 mark
Description – 1 mark

Q.2 Minor experiment (any one) **(20)**

1. Recording of blood clotting time
   OR
2. Recording of bleeding time
   OR
3. Haemoglobin estimation

NOTE: for minor experiment
Following points must be given by the students in practical examination

1. Principle of experiment (4)
2. Perform experiment (10)
3. Result of experiment (2)
4. Significance of experiment (2)
5. Good Laboratory Practices (2)

Q. 3 Major experiment (any one) **(30)**

1. Total R.B.C. point
2. Total W.B.C count
3. Differential leukocyte count (D.L.C)

Distribution of mark scheme for major experiment

1) Total red blood cell count (30)

1. Principle of experiment
2. Identification of RBC squares on the haemocytometer
3. Charging of squares with diluted blood
4. Counting of RBCs in five small squares .i.e. 125 smallest squares
5. Calculation of total RBC count
6. Result of total RBC count
7. Significance of experiment (conclusion of experiment)
8. Good Laboratory Practices

OR

2) Total white blood corpuscle count (30)

1. Principle of experiment
2. Identification of WBC squares on the haemocytometer
3. Charging of square with diluted blood

4. Counting of WBCs from four large square i.e. 64 smallest squares
5. Calculation of total WBC count
6. Result of total WBC count
7. Significance of experiment (conclusion of experiment)
8. Good Laboratory Practices

OR

3) Differential leucocyte count (30)

1. Preparation of blood smear
2. Staining of blood smear with suitable stain
3. Examination of stained blood film under oil immersion lens
4. Counting of different types of WBC from stained blood slide
5. Diagrams of different types of white blood corpuscles
6. Results in terms of percentage of different types of WBC
7. Conclusion or significance of experiment
8. Good Laboratory Practices

Q. 4 Viva –voce (10)

PATTERN FOR SESSIONAL EXAMINATION (ER 2020)

Class: F.Y. D. Pharm **Subject: Human Anatomy & Physiology**

Max marks: 80 **Time: 3 hours**

Proposed Specifications for Question Paper pattern for the Sessional Practical Examination for the.....

Subject: Human Anatomy and Physiology (Subject Code: 20054)

Sessional practical exam shall be conducted for **80 marks**, to be converted to **10 marks** in each sessional and then the internal assessment shall be calculated based on the best two averages for 10 marks from the sessional and other 10 marks shall be awarded as per the following:

Sr. No.	Details	Marks
1	Actual performance in the sessional examination	10
2	Assignment marks (which should be average of three assignment marks)	10

Practical sessional examination shall be based on the pattern same as annual practical examination with different marks distribution.

Marks Distribution (80 Marks)

The question paper for Sessional Practical Examination for the **Subject Human Anatomy and Physiology (20054)** can be formatted as per the scheme given below:

Sr. No.	Question	Marks	Time
1	Spotting	10	20 minutes
2 Experiments	i) Minor	20	1 hr
	ii) Major	30	1 ½ hr
3	Viva-voce	10	10 minutes
4	Practical Record Maintenance	10	
Total Marks		**80**	

PATTERN FOR ANNUAL PRACTICAL EXAMINATION (ER 2020)

Class: F.Y. D. Pharm **Subject: Social Pharmacy**

Max marks: 80 **Time: 3 hours**

Q.1 Synopsis	**(10)**
Q.2 Major experiment	**(18)**
Q.3 Minor experiment	**(12)**
Q.4 Spotters	**(30)**
Q.5 Viva voce	**(10)**

Instructions

Evaluation of the students is carried out by both external and internal examiner on equal marks distribution. Marks distribution shall be as follows:

Internal Examiner (40 marks)

Synopsis	Q.1 (10 marks)
Major experiment	Q.2 (18 marks)
Minor experiment	Q.3 (12 marks)

External examiner (40 marks)

Spotters	Q.4 (30 marks)
Viva-voce	Q.5 (10 marks)

PATTERN FOR ANNUAL PRACTICAL EXAMINATION (ER 2020)

Class: F.Y. D. Pharm **Subject: Social Pharmacy**

Max marks: 80 **Time: 3 hours**

Q.1 Synopsis:

Five questions may be asked, each carrying 2 marks **10M**

Questions may be asked from following topics:

a) First Aid

b) National Immunization Program

c) Oral Health and Hygiene

d) Reproductive and child health

e) Communicable diseases

Q. 2 Major Experiment (4×4.5): **18M**

Questions may be asked from following topics:

First Aid – Theory, basics, demonstration, hands on training, audio-visuals, and practice, BSL (Basic Life Support) Systems [SCA - Sudden Cardiac Arrest, FBAO - Foreign Body Airway Obstruction, CPR, Defibrillation (using AED) (Includes CPR techniques, First Responder).

OR

Preparation of various charts on nutrition, sources of various nutrients from Locally available foods, calculation of caloric needs of different groups (e.g. child, mother, sedentary lifestyle, etc.). Chart of glycaemic index of foods.

OR

Health Communication: Audio / Video podcasts, Images, Power Point Slides, Short Films, etc. in regional language(s) for mass communication / education / Awareness on 5 different communicable diseases, their signs and symptoms, and prevention.

OR

National immunization schedule for children, adult vaccine schedule, Vaccines which are not included in the National Immunization Program.

RCH – reproductive and child health – nutritional aspects, relevant national health programmes.

Q. 3 Minor Experiment (4×3): **12M**

Questions may be asked from following topics:

Oral Health and Hygiene

Personal hygiene and etiquettes – hand washing techniques, Cough and sneeze etiquettes.

Menstrual hygiene, products used.

OR

Counselling children on junk foods, balanced diets – using Information, Education and Communication (IEC), counselling, etc. (Simulation Experiments).

OR

Water purification techniques, use of water testing kit, calculation of Content/percentage of $KMnO_4$, bleaching powder to be used for wells/tanks.

OR

Role of Pharmacist in Disaster Management

Emergency treatment for all medical emergency cases viz. snake bite, dog bite, insecticide poisoning, fractures, burns, epilepsy etc.

Q. 4 Following may be included in Spotters (6×5): 30M

1. Family planning devices
2. Microscopical observation of different microbes (readymade slides)
3. Various types of masks, PPE gear, wearing/using them, and disposal
4. Marketed preparations of disinfectants, antiseptics, fumigating agents, anti- larval agents, mosquito repellents, etc.

Viva-voce 10M

PATTERN FOR SESSIONAL PRACTICAL EXAMINATION (ER 2020)

Class: F.Y. D. Pharm **Subject: Social Pharmacy**

Max marks: 80 **Time: 3 hours**

Sessional practical exam shall be conducted for **80 marks**, to be converted to **10 marks** in each sessional and then the internal assessment shall be calculated based on the best two averages for 10 marks from the sessional and other 10 marks shall be awarded as per the following:

Sr. No.	Details	Marks
1	Actual performance in the sessional examination	10
2	Assignment marks (which should be average of three assignment marks)	05
3	Field visit	05

Practical sessional examination shall be based on the pattern same as annual practical examination pattern with different marks distribution.

Marks Distribution (80 Marks)

The question paper for Sessional Practical Examination for the **Subject Social Pharmacy (20055)** can be formatted as per the scheme given below:

Sr. No.	Question	Marks	Time
1	Synopsis	10	10 minutes
2 Experiments	i) Major	18	1 hr
	ii) Minor	12	50 minutes
	ii)Spotters	20	50 minutes
3	Viva-voce	10	10 minutes
4	Practical record maintenance	10	
	Total Marks	**80**	

Program Name: Diploma in Pharmacy

Program Code: PH

Year: Second

Course Title: COMMUNITY PHARMACY AND MANAGEMENT-Theory (CMT)

Course Code: ER20-22T

Unit No	Unit Title	Teaching Hours	Distribution of Theory Marks			
			R Level	U Level	A Level	Total Marks
1	Community Pharmacy Practice	2	3	0	0	4
2	Professional responsibilities of community pharmacists, concept of Good Pharmacy Practice and SOPs	3	2	3	0	5
3	Prescription and prescription handling	7	2	5	2	9
4	Communication skills	6	3	3	0	6
5	Patient counselling	10	4	4	3	11
6	Medication Adherence	2	1	2	0	4
7	Health Screening Services in Community Pharmacy	5	1	2	2	5
8	Over The Counter (OTC) Medications	15	4	6	6	16
9	Community Pharmacy Management	25	20	10	5	28
Total		**75 Hours**	**40**	**35**	**23**	**88 Marks**

Program Name: Diploma in Pharmacy

Program Code: PH

Year: Second

Course Title: Biochemistry &Clinical Pathology-Theory (BCT)

Course Code: ER20-23T

Unit No	Unit Title	Teaching Hours	Distribution of Theory Marks			
			R Level	U Level	A Level	Total Marks
1	Introduction to biochemistry	2	2	0	0	2
2	Carbohydrates	5	2	4	0	6
3	Proteins	5	0	4	3	7
4	Lipids	5	0	4	2	6
5	Nucleic acids	4	0	4	1	5
6	Enzymes	5	2	3	2	7
7	Vitamins	6	2	4	0	6
8	Metabolism	20	6	12	4	22
9	Minerals	5	0	2	1	3
10	Water and Electrolytes	5	2	3	1	6
11	Introduction to Biotechnology	01	0	1	1	2
12	Organ function tests	06	3	4	2	9
13	Introduction to Pathology of Blood and Urine	06	2	5	0	7
Total		**75 Hours**	**21**	**50**	**17**	**88 Marks**

Program Name: Diploma in Pharmacy

Program Code: PH

Year: Second

Course Title: Pharmacotherapeutics-Theory (PTT)

Course Code: **Course Code**: ER20-24T

Unit No	Unit Title	Teaching Hours	Distribution of Theory Marks			
			R Level	U Level	A Level	Total Marks
1	**Pharmacotherapeutics** – Introduction, scope and objectives. Rational use of medicines, evidence based medicines, essential medicines list, standard treatment guidelines (STGs)	8	3	3	0	6
2 2a	Definition, etiopathogenesis, clinical manifestations, nonpharmacological and pharmacological management of the diseases associated with **Cardiovascular System** Hypertension Angina and Myocardial infarction Hyperlipidaemia Congestive Heart Failure	8	5	3	2	10
2b	**Respiratory System** Asthma COPD	4	3	2	0	5
2c	**Endocrine System** Diabetes Thyroid disorders - Hypo and Hyperthyroidism	5	3	3	0	6
2d	**Central Nervous System** Epilepsy Parkinson's disease	8	5	3	2	10

	Alzheimer's disease Stroke Migraine					
2e	**Gastro Intestinal Disorders** Gastro oesophageal reflux disease Peptic Ulcer Disease Alcoholic liver disease Inflammatory Bowel Diseases (Crohn's Disease and Ulcerative Colitis)	8	5	3	2	10
2f	**Haematological disorders** Iron deficiency anaemia Megaloblastic anaemia	4	3	0	1	4
2g	**Infectious diseases** Tuberculosis Pneumonia Urinary tract infections Hepatitis Gonorrhoea and Syphilis Malaria HIV and Opportunistic infections Viral Infections (SARS, CoV2)	12	5	6	4	15
2h	**Musculoskeletal disorders** Rheumatoid arthritis Osteoarthritis	3	3	0	0	3
2i	**Dermatology** Psoriasis Scabies Eczema	3	3	0	0	3
2j	**Psychiatric Disorders** Depression Anxiety Psychosis	4	3	2	0	5
2k	**Ophthalmology** Conjunctivitis (bacterial and viral) Glaucoma	2	3	0	0	3
2l	**Anti-microbial Resistance**	2	0	3	0	3
2m	**Women's Health** Polycystic Ovary Syndrome Dysmenorrhea Premenstrual Syndrome	4	3	2	0	5
Total		**75 Hours**	**47**	**30**	**11**	**88 Marks**

Program Name: Diploma in Pharmacy

Program Code: PH

Year: Second

Course Title: Hospital and Clinical Pharmacy – Theory (HCT)

Course Code: **Course Code**: ER20-25T

Unit No	Unit Title	Teaching Hours	Distribution of Theory Marks			
			R Level	U Level	A Level	Total Marks
1	Hospital Pharmacy	6	3	5	2	10
2	Different Committees in the Hospital	4	4	2	0	6
3	Supply Chain and Inventory Control	14	6	6	2	14
4	Drug distribution	7	6	3	0	9
5	Compounding in Hospitals.	4	2	2	0	4
6	Radio Pharmaceuticals	2	2	2	0	4
7	Application of computers in Hospital Pharmacy Practice,	2	0	2	1	3
8	Clinical Pharmacy: Daily activities of clinical pharmacist, Pharmaceutical care, Medication therapy Management, Home medication review	12	3	6	3	12
9	Clinical laboratory tests used in the evaluation of disease states - significance and interpretation of test results	10	2	3	4	9
10	Poisoning: Drugs and Poison Information Centre and their services	6	3	4	0	7
11	Pharmacovigilance	2	1	1	0	2
12	Medication errors, Drug Interactions	6	3	3	2	8
Total		**75 Hours**	**35**	**39**	**14**	**88 Marks**

Program Name: Diploma in Pharmacy

Program Code: PH

Year: Second

Course Title: Pharmacy law & Ethics-Theory (PLT))

Course Code: **Course Code**: ER20-26T

Unit No	Unit Title	Teaching Hours	Distribution of Theory Marks			
			R Level	U Level	A Level	Total Marks
1	General Principles of Law, History and various Acts related to Drugs and Pharmacy profession	2	2	1	0	3
2	Pharmacy Act-1948 and Rules	5	3	2	0	5
3	Drugs and Cosmetics Act 1940 and Rules 1945 and New Amendments	23	10	10	7	27
4	Narcotic Drugs and psychotropic substances Act 1985 and Rules	2	3	0	0	3
5	Drugs and Magic Remedies (Objectionable Advertisements) Act 1954	2	2	1	0	3
6	Prevention of cruelty to Animals Act-1960	2	1	1	0	2
7	Poisons Act-1919	2	2	1	0	3
8	FSSAI (Food Safety and Standards Authority of India) Act and Rules	2	1	0	0	1
9	National Pharmaceutical Pricing Authority	5	3	2	2	7
10	Code of Pharmaceutical Ethics	5	3	3	0	6
11	Medical Termination of Pregnancy Act and Rules	2	2	1	1	4

12	Role of all the government pharma regulator bodies	1	1	0	0	1
13	Good Regulatory practices	3	2	1	1	4
14	Introduction to BCS system of classification, Basic concepts of Clinical Trials, ANDA, NDA,	7	3	3	2	8
15	Blood bank – basic requirements and functions	2	0	1	0	1
16	Clinical Establishment Act and Rules -Aspects related to Pharmacy	2	2	1	0	3
17	Biomedical Waste Management Rules 2016	2	0	1	0	1
18	Bioethics	2	2	1	0	3
19	Introduction to the Consumer Protection Act	1	0	1	0	1
20	Introduction to the Disaster Management Act	1	0	1	0	1
21	Medical devices	2	1	0	0	1
Total		**75 Hours**	**43**	**32**	**13**	**88 Marks**

Appendix-A

(PCI Appendix-C)

Conditions to be fulfilled by the institution to be recognised for giving practical training

1. The Institution, where practical training is given to student pharmacists, shall from time to time, if required, furnish such information as may be needed by the Pharmacy Council of India about the staff, accommodation and equipment of the Institution concerned and its working.

2. The Institution shall permit the Inspectors of the Pharmacy Council of India to inspect the premises at any reasonable time while the work is proceeding therein.

3. The Institution shall entrust some member or members of its staff, who shall be registered pharmacist (s), to look after the student pharmacists. Such members of the staff shall be responsible in this behalf to the Head of the Institution concerned.

4. The Institution shall provide such opportunity, accommodation, apparatus, materials and books of reference as may be required to enable the student pharmacists to undergo the practical training properly.

5. The number of student pharmacists that may be taken in any hospital, pharmacy and chemist and druggist licensed under the Drugs and Cosmetics Rules, 1945 made under the Drug 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.

6. The Institution wishing to be recognised under regulation 18 shall apply in writing to the Secretary, Pharmacy Council of India stating its desire, to be so recognised.

7. Having satisfied that the institution shall follow the conditions laid down in these rules, the Pharmacy Council of India shall grant such recognition.

8. In the event of any question arising as to the interpretation or observance of these conditions the decision of the Pharmacy Council of India shall be final.

Appendix-B

(PCI Appendix-D)

Practical training contract form for pharmacists

SECTION I

This form has been issued to_____

(Name of student pharmacist)

son of /daughter of_____ residing at _____ who has produced evidence before me that he/she is entitled to receive the Practical Training as set out in the Education Regulations, 2020 made under section 10 of the Pharmacy Act, 1948.

Date: **The Head of Institution imparting practical training**

SECTION II

I_____ accept

(Name of the Student Pharmacist)

_____of_____

(Name of the Apprentice Master) (Name of the Institution)

_____

(Hospital or Pharmacy)

as my Apprentice Master for the above training and agree to obey and respect him /her during the entire period of my training.

(Student Pharmacist)

SECTION III

I,_____ accept

(Name of the Apprentice Master)

_____ as a

(Name of the student pharmacist)

trainee and I agree to give him /her training facilities in my organisation so that during his /her training he /she may acquire:

1. Working knowledge of keeping of records required by the various Acts affecting the profession of pharmacy; and

2. Practical experience in –

1) Stocking of Drugs and Medical Devices
2) Inventory control procedures
3) Handling of prescriptions
4) Dispensing
5) Patient counseling

I also agree that a Registered Pharmacist shall be assigned for his /her guidance.

(Apprentice Master)

(Name & address of the Institution)

SECTION IV

I certify that _____had

(Name of student pharmacists)

has undergone _____hours training spread over _____months in accordance with the details enumerated in SECTION III.

_____

(The Head of Institution imparting practical training)

SECTION V

I certify that _____has

(Name of student pharmacists)

completed in all respect his practical training under the Education Regulations, 2020 made under section 10 of the Pharmacy Act, 1948. He had his practical training in an Institution approved by the Pharmacy Council of India.

Date: _____

(Head of the Academic Institution)

Part IV

REGULATIONS FOR DIPLOMA IN PHARMACY

Preamble

The Pharmacy Council of India (PCI) has, with the approval of the Central Government, Prescribed "Minimum Standards for Pharmacy Education Regulations, 1991" for imparting Pharmacy education throughout India for the award of Recognized Qualifying Degree or Diploma in Pharmacy for the purpose of registration as an Pharmacist. Since the "Regulations 1991" are applicable as mandatory requirement under the provisions of the PCI Act 1972, the Board is adhering to the same.

RP- 1 Admission to the Course/Programme

A candidate shall not be admitted to the course/programme of Diploma in Pharmacy (part I of the course/programme) affiliated by the Board, unless he/she has passed the qualifying examination or an equivalent examination as prescribed by the competent authority for admission to the course/programme in the state of Maharashtra and fulfills the other conditions prescribed for the admission to the course/programme.

RP-2 Examinations

There shall be two examinations, Diploma in Pharmacy, (Part-I), to examine candidates in the first year course/programme and Diploma in Pharmacy (Part-II), to examine candidates in the second year course/programme. Each examination may be held twice every year. The first examination in a year shall be the Annual examination and second examination shall be supplementary examination of the Diploma in Pharmacy (Part-I) or Diploma in Pharmacy (Part-II), as the case may be. The examination shall be of written and Practical (including oral) nature as indicated in the table in the regulation 10 of the Education Regulation 91 framed by the Pharmacy Council of India.

RP-3 Exemptions

A candidate who has appeared in all subjects/courses (theory, practical with sessional/ oral) of first year or second year, but failed in some subjects/courses (theory and/or practical with sessional/ oral) may be exempted from reappearing in the subjects//courses in which he/she has passed by securing 40% marks or above.

RP-4 Eligibility for Award of Diploma in Pharmacy

A candidate to be eligible for award of Diploma in Pharmacy shall have to pass

- Diploma in Pharmacy Part-I (First year) and
- Diploma in Pharmacy Part-II (Final year)

Consisting of the course of study given in chapter II of the Education Regulation - 91, prescribed by Pharmacy Council of India.

- Diploma in Pharmacy (Part-III)

Consisting of Practical Training and the Certificate of having completed satisfactorily the apprenticeship period as provided in Chapter III of the Education Regulation - 91 prescribed by the Pharmacy council of India.

RP-5 Eligibility for Diploma in Pharmacy (Part-II)

If a candidate completes satisfactorily the term of First Year and appears in all subjects/courses including theory, practical and sessional/oral of Diploma in Pharmacy Part-I Examination, but fails in more than two subjects/courses (including theory and/or practical with Sessional/ Oral), he/she shall not be eligible for promotion to Diploma in Pharmacy Part-II.

A candidate who fails in theory or practical examination of a subject/course shall re-appear such in theory paper or Practical as the case may be.

RP–6 Results of final year and first year examinations to be declared simultaneously

The result of a candidate, who has appeared for final year examination simultaneously with first year examination, shall be withheld until he/she passes in the first year examination. However, if such candidate fails in the final year examination, the result would be declared.

RP-7 Teaching and Examination Scheme

The teaching and examination scheme of Diploma in Pharmacy shall be as prescribed under chapter II of the Education Regulation, 91 of Pharmacy Council of India and adopted by the Board, subject to such revision and modification made from time to time by Pharmacy Council of India.

The examination in various subjects/courses may include

i. Theory

ii. Practical (by using software – wherever applicable) including sessional examinations as per Educational Regulation 1991 and ER 1996.

RP-8 Award of Sessional Marks and Maintenance of Record

The record of theory and practical class work shall be maintained by the institute in the manner prescribed in Education Regulation 91 as under:

- A regular record of both theory and practical class work and examination conducted in an Institute imparting training for the course/programme for Diploma in Pharmacy, Part- I and Part-II shall be maintained for each candidate and 20 marks for each paper in theory and 20 marks for each paper in practical shall be allotted as Sessional Marks.
- There shall be at least 2 periodic sessional examinations during each academic year. In case more than two periodic tests are held the highest aggregate of any two performances shall form the basis for calculating sessional marks.
- If any candidate remains absent for any periodic test he/she shall be deemed to have secured zero marks in the said test.
- The Principal shall communicate the sessional marks of the candidates to the Board as directed within the stipulated period.

RP-9 Improvement of Sessional Mark

A) Scope of Improvement

A candidate may improve the sessional marks as per the provision made in the Education Regulation 91 as under:

Candidate who wishes to improve sessional marks can do so, by appearing in two additional sessional examinations during the next academic year. The average score of the two examinations shall be the basis of improved sessional marks in theory. The sessional of practical shall be improved by appearing in additional practical examinations. Marks awarded to a candidate for day-to-day assessment in the practical class cannot be improved unless he/she attends a regular course of study again. The average sessional marks thus calculated should be made available to all examiners in the practical subject/ course at the commencement of the relevant examination in both the Diploma in Pharmacy part I & II examinations.

The facility of improvement of sessional marks shall be given only for one time.

B) Allotment of Sessional Marks for Practical

The sessional marks would be divided in two parts for assessment by examiners as per the provision made in the Education Regulation 91 as under:

The sessional marks in Practical shall be allotted on the following basis:

Actual performance in the sessional examinations = 10 marks.

Day to Day assessment in the Practical class work = 10 marks

RP-10 Standard of Passing and Award of Class

A) Standard of Passing

A candidate shall not be declared to have passed Diploma in Pharmacy examination, unless he/she secures at least 40% marks in each of the subjects/courses separately in the theory examinations including sessional marks and also at least 40% marks in each of the practical examinations including sessional marks.

B) Award of Class

- **First Class with Distinction**

  The candidate securing 75% of aggregate marks or above in a single attempt at the Diploma in Pharmacy (Part-I) or Diploma in Pharmacy (Part- II) examination, shall be declared to have passed the related examination in First class with Distinction.

- **First Class**

  The candidate securing 60% of aggregate marks or above but less than 75% marks in a single attempt at the Diploma in Pharmacy (Part-I) or Diploma in Pharmacy (Part-II) examination, shall be declared to have passed the related examination in First class

- **Second Class**

  The candidate securing 50% of aggregate marks or above but less than 60% marks in a single attempt at the Diploma in Pharmacy (Part-I) or Diploma in Pharmacy (Part-II) examination, shall be declared to have passed the related examination in Second class.

- **Pass Class**

  The candidate securing less than 50% of aggregate marks but above the minimum passing marks at the Diploma in Pharmacy (Part-I) or Diploma in Pharmacy (Part-II) examination shall be declared to have passed the related examination in Pass class.

C) Disqualification for Award of Class

A candidate, who has failed in an examination of the Board and has subsequently claimed exemption/s in certain subjects/courses on the basis of having passed certain subjects/ courses at previous examination, and whose marks secured in such subjects/courses have been carried forward, would not be entitled for award of class.

RP–11 Gracing

A) Gracing for Award of Class

If a candidate falls short by maximum ½% of the aggregate marks assigned to the examination, to be eligible for First class or Second class, such deficiency would be removed by adding maximum ½% of the aggregate marks assigned to the examination to the total marks obtained by the candidate in the examination. While adding maximum ½% of the aggregate marks fraction of a mark shall be rounded to the next full number and added in the total.

B) Gracing for Subject/Course Passing

A candidate would get the grace marks of maximum 1 or 2 as the case may be to remove the deficiency in securing minimum marks for passing a theory subject/course having total marks below 75 or maximum 1, 2 or 3 as the case may be, for a subject/course theory having total marks 75 or above, in theory and test examination of that subject/course.

C) Standard of Passing

A candidate shall not be declared to have passed Diploma in Pharmacy Examination unless he/she secures minimum passing marks of 40% in each of the subjects/courses separately, in the theory examinations including sessional, as well as practical examination including sessional work.

RP-12 Award of Diploma Certificate

The Board shall award Diploma in Pharmacy to a candidate who has passed Diploma in Pharmacy (part-I) and (Part-II) examinations and has also duly produced the Certificate of satisfactory completion of practical training for Diploma in Pharmacy (part-III), from an institute fulfilling the conditions stipulated in Appendix-D of Education Regulation 91. Principal / Head of the institute, where the candidate is enrolled, shall submit a copy of such Certificate to the Secretary, for issuance of the Certificate of the Diploma.

RP-13 Scope of Pharmacy Council of India Rules

The Board shall adopt and apply the rules, prescribed by the Pharmacy Council India, for admission to the Pharmacy Course/programme, admission to the examinations, passing the examination etc., from time to time.

Resolution No. 3.28 of Academic Council (AC-49/2024): Resolved to approve the proposed "Grace Marks Policy" for B.Pharm and D.Pharm Programs offered at MGM School of Pharmacy, Navi Mumbai, to be applicable from academic year 2023-24 onwards **[ANNEXURE-23B]**.

MGM SCHOOL OF PHARMACY

(Constituent unit of MGM Institute of Health Sciences Deemed to be University u/s 3 of UGC Act 1956)

Grade 'A$^{+\,+}$' Accredited by NAAC

Plot No.-14, Sector-08, Nerul, Navi Mumbai.

E-Mail**:** pharmacy@mgmuhs.com

This has reference to the discussion with respected Vice Chancellor sir, regarding provision of grace marks for D. Pharmacy examination. I am herewith submitting the final draft.

Gracing Rules for D. Pharm Course

A maximum of 1% of aggregate marks (rounded to the nearest whole digit) in each Annual Exam can be awarded as grace mark.

The benefit of gracing marks shall be in maximum three subjects in divided fashion. Further, maximum grace marks per subject shall be 5.

Provided that the benefit of gracing marks shall be applicable only if the candidate passes the entire examination.

Grace marks provision is for that particular examination.

The following table depicts the maximum Grace Marks allowed in the Annual Pattern Exam:

Sr. No	Year	No of Theory Subjects (ER 2020)	Aggregate Marks	Max. Grace Marks
1	1st Year D. Pharmacy	05	1000	10
2	2nd Year D. Pharmacy	06	1100	11

Thanking You,

Principal

MGM INSTITUTE OF HEALTH SCIENCES

(Deemed to be University u/s 3 of UGC Act,1956)

Grade 'A^{++}' Accredited by NAAC

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