

CENTRAL COUNCIL OF INDIAN MEDICINE

**SYLLABUS OF
POST-GRADUATE DIPLOMA
(Ilmul Saidla-Pharmacy)**

2 YEARS DIPLOMA COURSE

**CENTRAL COUNCIL OF INDIAN MEDICINE
61-65, INSTITUTIONAL AREA,
JANAKPURI
NEW DELHI - 110058**

(EXISTING)

AIMS AND OBJECTIVES

The objective of the course is intended to produce skilled Pharmaceutical professionals to meet out the requirements Unani pharmaceutical industries, manufacturing units and supervision of dispensaries of hospitals and public healthcare services. The course is meant for those who wish to work in the manufacturing/production of Unani/ herbal drugs, analysis and pharmaceutical product development.

The course of study & Examination: Two academic years (Regular course) with each academic year spread over a period of not less than 180 days.

Minimum educational qualification required for the course: B.U.M.S.

Criteria for admission: through competitive examination

Medium of instruction and examinations: Urdu substantiated by English scientific terminology

Scheme of examination: Annual examination system

Part-I----- 3 papers (1st year) Examination will be held at the end of first academic year after admission

Part-II----- 3 papers + Dissertation + Apprenticeship (one month) (2nd year)
Examination will be held at the end of second academic year.

Number of Papers and Maximum Marks for Theory & Practical examinations:-

Part I - (FIRST YEAR)

Name of Subject	No. of hours for Teaching (Theory & Practicals)	Details of Maximum Marks (Theory + IA) 80 + 20	Practical Marks
Ilmul Saidla-I (General aspects of Pharmacy)	180	100	100
Ilmul Saidla-II (Pharmaceutical Developments and its Application in Saidla)	180	100	100
Ilmul Saidla-III (Pharmacognosy- Part A & Basic Pharmacology- Part B)	180	100	100

Part-II (SECOND YEAR)

Subject	No. of hours for Teaching (Theory & Practicals)	Details of Maximum Marks (Theory + IA) 80 + 20	Practical Marks
Ilmul Saidla-IV (Pharmaceutical Management- Part A , Regulatory Aspects- Part B and Hospital Pharmacy)- Part C	180	100	100
Ilmul Saidla-V (Quality Control and Quality Assurance)	180	100	100
Ilmul Saidla-VI (Cosmeceuticals Part A, Neutraceuticals-Part B and Calcinology Part-C)	180	100	100
Project work/Dissertation	-	-	200
Apprenticeship	-	-	-

Examinations:

- Every examination shall consist of one theory including Internal assessment and one Practical, including oral examination in subject.
- **Pattern of written examination: Total Marks = 100 (Theory = 80 + Internal Assessment = 20)**
- **Pattern of Practical examination:**

1. Practical Record book/Herbarium Sheet	20
2. Practicals/ Spotting	30
3. Viva-voce	50

Total	100 Marks
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- **Marks allotted to Project work (Dissertation) : 200**
- Each examination shall have three hours duration.
- There shall be supplementary/second examination which will be held within three months after annual examination.
- The student shall have to pass PG Diploma course within a span of four years otherwise his admission to the course may deemed to be cancelled.
- Passing marks in each subject will be 50% separately in theory and practical examinations. Distinction will be awarded for 75% in a paper.

- **Pattern of minimum teaching staff for PG Diploma course shall be in the following manner:-**

(1) The requirement of minimum teaching staff to run a PG Diploma Course shall be three teachers (one HF + one LF of UG) and additionally one LF for PG Diploma Course.

(2) In order to imparting effective teaching of the subject(s) related to Modern Pharmaceutical Science teachers on contractual basis/part time/adjunct faculty may be appointed or assigned the teaching as per the requirement.

- Pharmaceutical chemistry
- Modern Pharmacy/Pharmaceutics
- Pharmacognosy
- Pharmacology

Dissertation: Every student of PG Diploma Course shall carry out work on an assigned project aimed at contribution to the development of Ilmul Saidla under the guidance of a teacher i.e. supervisor, the result of which will be written up and submitted in the form of a dissertation before the end of academic term (one month before final examination). Every dissertation will be examined/evaluated for the defined marks (200) by an external examiner. The topic for Project/dissertation will be allotted in the beginning of second year by the Department.

Apprenticeship: The student of PG Diploma course shall have to undergo apprenticeship with licensed herbal/Unani pharmaceutical units' atleast for one month. In the course of practical training the trainee should have expose to the manipulation of pharmaceutical apparatus in common use and storage of drugs and their preparation and dispensing etc.

ILMUL SAIDLA-I (GENERAL ASPECT OF PHARMACY)

1. Brief introduction to History, scope and development of Saidla with special reference to the contribution of pioneers of Ilm-ul-Saidla in different periods.

2. Concept of Pharmacopoeia (Qarabadeen) and Formulary

Knowledge on Pharmacopoeias with special reference to Unani Pharmacopoeia of India, National Formulary of Unani Medicine, Indian Pharmacopoeia, British Pharmacopoeia, nited States Pharmacopoeia and International Pharmacopoeia.

3. **Posology – Auzane-e-Advia (Metrology- System of weight and measures along with old weighing system):** Dose and Dosage of drugs, Factors influencing dose, Calculations of doses on the basis of age.

4. Introduction to Pharmaceutical terminologies and scientific interpretation of Amaliyate Dawasazi (Pharmaceutical Procedures): **Irgha** (Removal of Froth), **Tarveeq** (Clarification), **Tareeq** (Distillation), **Taqteer** (Distillation), **Iqla** (Salt preparation), **Tashvia** (Roasting), **Tabkheer**, **Tadkheen** (Fumigation), **Tadheen**, **Tajfeef** (Drying/Siccation), **Ghasl** (Washing), **Tasfia** (Cleaning process), **Tasveel** (Decantion), **Ihraq** (Burning, Inceneration), **Taklees** (Calcination), **Tahmees** (Torrefaction), **Tabalvur** (Crystallization), **Izala Laun** (Removal of colours), **Itfa** (Quenching), **Sahaq** (Grinding), **Tahleel** (Dissolution), **Taqtee** (Cutting), **Nakhl** (Sieving), **Taseer** (Squeezing), **Tarsheeh** (Filtration), **Tahbeeb** (Granulation), **Takhmir wa Taafin** (Fermentation), **Taseed** (Sublimation).

5. **Introduction and methods** of preparation of different classical dosage forms using novel techniques. Classification of classical dosage forms- solid, semisolid, liquid and Gaseous dosage forms; and need of improvisation.

(i) **Jamid Ashkale Advia (Solid Dosage forms):** Habb (Pill), Qurs (Tablet)

6. (i) **Sufoof Sazi (Powdering):** Classification of powder and its grades.

(ii) **Sayyaal Ashkale Advia (Liquid Dosage forms):** Theoretical aspects including commonly used badarqa (vehicle). Review of the following liquids with detail method of formulation. Arqiyat, Sharbat, Joshanda, Khaisanda, Zulaal, Sikanjabeen, Nabeez, Sirka, Qatoor, Wajoor, Roghan, Huqna, Tila etc.

Method of preparation of Qiwan (sugar syrup) and materials used for it and measurement of consistency.

(iii) **Mazeej (Suspension):** Suspensions containing diffusible solids and liquids and their preparations. Study of the adjuvants used like thickening agents, wetting agents, their necessity and quantity to be incorporated. Suspensions of precipitate forming liquids like, tinctures, their preparations and stability. Suspensions produced by chemical reaction. An introduction to flocculated, non-flocculated suspension system.

(iv) **Haleeb (Emulsion):** Types, identification of emulsion system, formulation, selection of emulsifying agents, Instabilities in emulsions, Preservation of emulsions, Evaluation of emulsion. Study of emulsifying equipments like Silverson mixer emulsifier, Laboratory emulsifier etc.

7. Nim-jamid Ashkale Advia (Semi Solid Dosage Form):

(a) Marham (Ointment): Types, Preparation and stability of ointments by the following processes: (i) Trituration (ii) Fusion (iii) Chemical reaction (iv) Emulsification.

(b) Zimaad (Pastes): Difference between ointments and pastes, bases of pastes. Preparation of pastes and their preservation.

(c) Majoon, Itreefal, Jawarish, Khameerah, Laooq, Gulqand

8. Farzajah, Hamool and Shayaf: merits and demerits, types, bases, properties, Preparation and packing and use of suppositories, pessaries for drug absorption.

9. Ophthalmic Preparation: Study of essential characteristics of different ophthalmic preparations.

10. Method of preparation of johar, usara, rub and sat.

11. Extraction of oils with novel techniques

12. Labelling instructions and precautions while dispensing various dosage forms

PRACTICALS

Preparation of following classes of products involving the use of calculations in metrology (at least one product from each category wherever applicable):

1. Arqiyat, Mahlool (Solution), Muffarihat (Elixir), Lotions, Zimad (Paste), Mucilage, Qurs (Tablet), Sufuf (Powder) and Capsules. Sharbat (Syrup), Majoon (Electuary), Khamira (Fermented confection), Laooq (Linctus electuary), Jawarish, Joshanda (Decoction), Khaisanda (Infusion), Emulsions (Haleeb), Suspension (Mazeej), Tila (Liniment), Marham (Ointment), Qairuti (Paste specially used on Thorax), Shayaf (Suppository), Farzajah (Vaginal Suppository), Nabeez, Sibgha (tincture) etc.
2. Visit to GMP certified manufacturing units.

ILMUL SAIDLA-II (PHARMACEUTICAL DEVELOPMENTS AND ITS APPLICATION IN ILMUL SAIDLA)

1. Detailed knowledge of ancient and contemporary pharmaceutical instruments used in Unani Pharmacy

Kharal, Aalae Tareeq, Patal Jantar, Jaljantar, Sieves, Granulator, Tablet making machine, Coating machine, Grinders, Distillation apparatus, Desiccator, Oven, Crucibles, Boota.

2. Pharmaceutical Additives: Diluents, Vehicles, Bases, Solvents, Hydrocolloids, Surfactants, Flavouring agent, Fragrance agent, Sweetening agent, Colouring agent, Binder, Glidants, Lubricants, anti-Adherent etc.

3. Size Reduction and Size Separation: i) Definitions, principles of size reduction, objectives of size reduction, factors affecting size reduction.

ii) Different methods of size reduction, study of Hammer mill, Cutter mill, Roller mill, Ball mill, Fluid energy mill and disintegrator.

iii) Various methods and equipments employed for size separation e. g., sieving, sedimentation, centrifugal elutriation, microscopic methods.

4. Mixing and Homogenization: Theory of mixing: solid-solid, solid-liquid, liquid-liquid and semisolid mixing. Study of different types of mixers used in pharmaceuticals such as Planetary mixers, Sigma mixers, Turbo dispensers, Double cone mixers, Colloid mill, Triple roller mill, Magnetic stirrer.

5. Clarification and Filtration: Definitions, theory and factors affecting filtration and clarification, types of filter media, filter aids, and selection of filters.

6. Heat Processes: Evaporation: Factors affecting evaporation, study of evaporating stills and evaporating pans, heat transferring evaporators, vapor compression evaporators, evaporation under reduced pressure.

Distillation: Importance of distillation in Pharmacy, methods of distillation.

Brief introduction to freeze drying, sublimation, desiccation.

7. Extraction of Drugs: Introduction to extraction processes, classification of extraction like liquid-liquid and solid liquid extraction. Theory of extraction of drugs, properties of solvents used for extracting drugs and different process involved in the extraction like maceration, percolation, digestion, expression, decoction.

8. Drying: Theory of drying - principles, equilibrium moisture content, rate of drying; drying of dilute solutions and suspensions - drum dryer, spray dryer; drying of solids - convection type, tray dryer, tunnel dryer, rotary dryer, fluidized bed dryer, vacuum dryer, oven dryer, freeze dryer, radiant heat dryers.

Brief introduction to freeze drying, sublimation and desiccation.

9. Sterilization methods and Principles: Concept of sterilization and its difference from disinfection. Methods of sterilization: Physical, chemical, heat, radiation, gaseous, filtration. Evaluation of the efficiency of sterilization methods. Equipments employed in large scale sterilization. Examples of the materials sterilized by different methods, sterility indicators.

10. Processing of Tablets: Definition, different types of compressed tablets and their properties. Process involved in the production of tablets; Tablet excipients; Defects in tablets; Evaluation of tablets. Tablet coating: sugar coating, film coating, polishing and enteric coating. Tablet coating materials and microencapsulation.

11. Processing of Capsules: Introduction, Types and different sizes of capsules.

- **Hard gelatin capsules:** Formulation of shell and contents, capsule production, filling operation and equipment employed.
- **Soft gelatin capsules:** Manufacturing, processing and quality control.

12. Packaging technology: Materials used, unit dose and multi dose packaging, strip and blister packaging and materials. Packaging of solid, liquid, parenterals and ophthalmic dosage forms. Stability aspects of packaging. Qualities of the package, choosing the form of package, hazards encountered by the package and protection by the package.

PRACTICALS

Demonstration of equipments (working procedure) for

- i) Size Reduction and size separation
- ii) Mixing and homogenization
- iii) Clarification and filtration
- iv) Evaporation
- v) Distillation
- vi) Extraction
- vii) Tablet coating

Evaluation of Dosage Forms

1. Tablet

1. Disintegration
2. Friability Test
3. Dissolution
4. Hardness
5. Powder Flow
6. Weight Variation

2. Semisolid Dosage Forms

1. Moisture content
2. Sugar content
3. Viscosity
4. Specific Gravity

3. Liquid Dosage Forms

1. pH Value
2. Specific gravity
3. Determination of refractive index
4. Viscosity

ILMUL SAIDLA-III (PHARMACOGNOSY & BASIC PHARMACOLOGY)

PART A: PHARMACOGNOSY

1. **Introduction to Pharmacognosy and Plant Nomenclature.**
2. **General principles of good cultivation, collection, storage and lab practices and shelf life of raw materials**
3. **Factors affecting the quality of drugs.**
4. **Deterioration of stored drugs.**
5. **Identification of crude drugs/ single Unani drugs.**
Morphology of Root, leaf, stem, fruit, seeds, flowers and its types.
Anatomical Studies: Microtomy, Powder study,
Quantitative Microscopy: Stomatal number, Stomatal index, Pallisade ratio, Vein islet no.
6. **Alkaloids and alkaloid containing drugs:** Kuchla, Ergot, Suranjan, Afyoon, Afsanteen, Asrol
7. **Glycosides and glycoside containing drugs:** Revand, Senna, Sibr, Squill, Digitalis
8. **Volatile oil & Resin containing drugs:** Ustokhuddus , Eucalyptus, Zeera, Darchini Anisoon
9. **Fixed oils, fats and waxes.**
10. **Fixed oil containing drugs:** Badam, Zaitoon, Kunjad , Baidinjeer, Katan.
11. **Tannin containing drugs:** Halela, Balela, Ashok chhal, Katha, Sandal Surkh, Arjun chhal
12. **Phenols and Phenolic Glycosides containing drugs:** Kamela, Badranjboya, Bedmushk, Revand Chini, Senna, Ghekwar.
13. **Gums and Resins containing drugs:** Kateera, Samagh-e-Arabi, Chuniya gond, Sanobar, Hilteet, Kundur, Mastagi, Murr Makki.
14. **Saponins containing drugs:** Hulba, Qust, Aslussoos, Brahmi, Asgandh.

PART B: BASIC PHARMACOLOGY

1. Definition, scope and branches of pharmacology. Historical development with special reference to India.
2. Routes of drugs administration and drug delivery systems.
3. Pharmacodynamics of drugs.
4. Pharmacokinetic parameters employed in the use of drugs, their bioavailability and biotransformations, metabolizing enzymes as targets of drugs action (induction and inhibition).
5. Mechanisms of drugs action, drug receptors and cellular signaling systems.
6. Drug antagonism and synergism.
7. Drug dependence and related conditions.
8. Adverse drug effects and their monitoring, Iatrogenic diseases.
9. Pharmacovigilance and its status in India, with reference to Unani drugs.

PRACTICALS

1. Organoleptic identification of ten medicinal plants
2. Morphological identification of any five families mentioned in the theory.
3. Anatomical characteristics and dissection of root, stem and leaf of two medicinal plants
4. Floral formula and floral diagram of five medicinal plants
5. Qualitative chemical tests of phytoconstituents.

Second Year

ILMUL SAIDLA-IV (PHARMACEUTICAL MANAGEMENT, REGULATORY ASPECTS AND HOSPITAL PHARMACY)

PART A: PHARMACEUTICAL MANAGEMENT

1. Drug House Management – Selection of Site, Space Lay-out and legal requirements.
2. Importance and objectives of Purchasing, selection of suppliers, credit information, tenders, contracts and price determination and legal requirements thereto. Codification, handling of drug stores and other hospital supplies.
3. Inventory Control – objects and importance, modern techniques like ABC,VED analysis, the lead time, inventory carrying cost, safety stock, minimum and maximum stock levels, economic order quantity, scrap and surplus disposal.
4. Sales Promotion, Market Research, Salesmanship, qualities of a salesman, Advertising and Window Display.
5. Introduction to Traditional Knowledge Digital Library (TKDL).
6. New Drug Application (NDA) and Abbreviated New Drug Application (ANDA)

PART B: REGULATORY ASPECTS

1. Good Manufacturing Practices (GMPs)

Status and applicability of regulation, current good manufacturing practices in manufacturing, processing, packaging and holding of drugs, production and process control, ISO 9000 and other certification and accreditation.

2. Laws governing pharmacy

- i. Pharmacy Act 1945 and Rules 1948.
- ii. Factory Act 1948
- iii. Relevant regulatory provisions of Unani drug in Drug and Cosmetic Act 1940 and Rules 1945.
- iv. Law pertaining to Drugs and Magic remedies (objectionable advertisement) Act 1954.
- v. Prevention of Food Adulteration (PFA) Act
- vi. Law pertaining to Narcotics
- vii. Consumer Protection Act 1986
- viii. Labour Act
- ix. Drug Price Control Order (Govt. of India Rules)
- x. The Indian Patents Act 1970 and Indian Patents (Amendments) Act 2005.

3. Intellectual Property Right (IPR): Introduction, Importance and types of intellectual property.

- 4. Regulatory affairs related to International Trade and Practices of Unani Drugs**
- 5. Knowledge of US FDA and statutory regulations as applicable to plant drugs in US.**

PART C: HOSPITAL PHARMACY

1. Hospital Pharmacy:

- (a) Definition
- (b) Functions and objectives of Hospital Pharmaceutical services.
- (c) Location, Layout, Supply-chain of material and men.
- (d) Personnel and facilities requirements including equipments based on individual and basic needs.
- (e) Requirements and abilities required for Hospital pharmacists.

2. Drug Distribution system in Hospital:

- (a) Out – patient services
- (b) In- patient services – (a) types of services (b) detailed discussion of unit Dose system, Floor ward stock system, Satellite pharmacy services, Central sterile services, Bed Side Pharmacy

3. Procurement of stores and testing of raw materials.

4. Hospital Formulary System and their organisation, functioning, composition.

5. Computer application: Application of computer in maintenance of records, inventory control, medication monitoring, drug information and data storage and retrieval in hospital and retail pharmacy establishments.

6. Toxicology

- i. Definition, scope and its branches
- ii. Heavy metal poisoning, insecticide and pesticide poisoning
- iii. Drugs in Clinical Toxicity – Narcotic drugs, Barbiturates, Organophosphorus poisons.
- iv. Drug interactions
 - a. Definition and introduction
 - b. Mechanism of drug interaction
 - c. Drug-drug interactions with reference to allopathic medicines, e.g. antibiotics, analgesics, cardiovascular drugs, gastrointestinal agents, vitamins etc.
 - d. Drug-food interactions
- v. Drug dependences, Drug abuse, addictive drugs.
- vi. Safety and Efficacy of Unani formulations.
- vii. LD₅₀ and ED₅₀

PRACTICALS

Viva voce examination 100

ILMUL SAIDLA-V (QUALITY CONTROL AND QUALITY ASSURANCE)

1. Aims and Objectives of Quality Control and Standardization

2. General principals of good cultivation, collection, storage and lab practices

3. Standardization of Herbal, Mineral and Animal origin drugs:

Physico-Chemical Studies

i) **Ash Values:** Total Ash, Acid Insoluble Ash, Water Soluble Ash

ii) **Extractive Values:** Successive Extraction, Non Successive Extraction

iii) **Moisture Content:** Loss of Drying Method at 105 °C, Toluene Distillation Method

Melting Point

pH: pH at 1% solution, pH at 10% solution

Constants for Fatty substances, Fats, Fixed oils and waxes: Acid value, saponification value, iodine value

Chemical Analysis: Qualitative analysis, quantitative analysis

4. Brief introduction to Analytical methods for analysis of drugs:

➤ **Chromatography**

- Aims and objectives of chromatography
- Thin Layer Chromatography
- Paper Chromatography
- Column Chromatography
- Gas Chromatography
- High Performance Liquid Chromatography
- High Performance Thin layer Chromatography

5. Spectroscopy: Introduction, types, scope and applications

6. Quality Assurance of single drugs of Unani Medicine: Adulteration of drugs, Factors affecting quality of drugs, Aflatoxin contamination, Microbial load, Heavy metal content in different formulations.

7. Determination of pesticides and Heavy metals.

8. Quality Assurance of compound formulations: Arq, Majoon, Safoof, Qurs, Kushta and other dosage forms:

9. Powder flow properties: Tapped density, Bulk density, Porosity, Angle of repose, Carrs' index, Hausners' ratio etc.

10. Detailed knowledge of Standard operating Procedures (SOPs).

11. Stability studies: Introduction, use of preservatives, antioxidants and other materials with shelf life of drug herbal materials.

12. Substitute of raw Unani drugs and adulterants identification.

PRACTICALS

Macroscopic and microscopic plant material examination

1. Organoleptic testing
2. Estimation of Foreign materials
3. Moisture content
4. Determination of Ash values- total, water soluble and acid insoluble ash
5. Specific gravity
6. Solubility- water and alcohol
7. Successive extraction
8. Determination of Rf value by TLC
9. Determination of optical density
10. Refractive index
11. pH estimation.
12. Determination of viscosity.
13. Swelling Index
14. Determination of Essential Oil.
15. Melting point and boiling point

ILMUL SAIDLA-VI (COSMECEUTICALS, NUTRACEUTICALS AND CALCINOLOGY)

PART A: COSMETICOLOGY

1. Concept of cosmetology in Unani Medicine
2. Important single and compound formulations used as cosmetics in Unani medicine
3. Preparation used on face: Ghaza, Ghalia, Ubtana etc
4. Preparation used on skin: Marham Cream, Lotion, Ubtana, Aabiyat, Zimad, Tila, Adhaan, Ghasool.
5. Preparation used on hair: Khizab, Camouflage
6. Preparation used in eye: Kajal, Lamelle
7. Preparation used on nails: Sibgha, Mehndi
8. Preparations used on teeth, gums and oral cavity: Sunoon, Gargara (Gargle), Mazmaza Mouth wash)
9. Atriyat (Perfumes and Deodorants)
10. Dental and Cosmetic Preparations: Introduction to Dentrifices, Facial cosmetics, Deodorants, Antiperspirants, Shampoos, Hair dressing and Hair removers.
11. Preparation of cosmetic products using classical and recent techniques. Common diluents and excipients used in cosmetics.
12. Adverse effects of cosmetics

PART B: NUTRACEUTICALS

1. Concept of Ghiza-e-dawai (Neutraceutical) in Unani, food suppliments, Probiotics, Antioxidants etc.
2. Clinically recommended diets according to age and mizaj.
3. Ghiza and life style disorders.
4. Malnutrition and special diets prescribed in Unani Medicine
5. Preparation and standardization of special diets.

PART C: ILMUL TAKLEES (CALCINOLOGY)

1. Historical background of Ilm-ul-Taklees (Calcinology),
2. Definition, Aims, objectives and scope of kushtasazi.
3. Basics of inorganic Chemistry in context of metals, non-metals and minerals used in Kushtasazi.
4. Principles of calcinations and general methods of preparation of various Kushtajat, e.g. faulad, hadeed, hartal, shangraf, sadaf, marjaan, qalyee, gaudanti, qarnul ayyil, sammul faar, hajarul yahood, nuqra, tila, jast. etc. and their scientific evaluation.
5. Calcination, incineration, temperature (pyrology) and Standardization of Kushta
6. Identification of kushta: i) Classical methods ii) Recent techniques useful in identification and Analysis of Kushta
7. Grading of temperature.
8. Instruments used in preparation of kushta (Classical and Modern)
9. Use of herbs in calcinations.
10. General precautions to be taken during calcinations process.
11. Adverse effects, Pharmacological action, doses, precaution in use, determination of shelf life etc

PRACTICALS

1. Preparation and formulation of creams, gels, pastes, shampoos, oils, face pack
2. Preparation of specialized diets e.g. Maul Asal, Halwajat, Hareera, Maushaeer etc.
3. Method of preparation of various kushtajat with classical and modern methods

REFERENCE BOOKS

1. Bayaze Kabeer, Vol. I – III, Md. Kabeeruddin, Daftarul Maseeh Hyderabad, 1960, 66, 67.
2. Qarabadeen Azam (Urdu), Azam Khan, Asmat Ali, Hasrat Lucknawi, Aijaz Publishing House, New Delhi , 1996.
3. Qarabadeen Kabeer (Urdu), Vol. I, Mir Md. Husain, Munshi Naval Kishore, Lucknow, 1892 AD.
4. Qarabadeen Qadri, Md. Akbar Arzani, Munshi Naval Kishore Lucknow, 1880 AD.
5. Kitabul Taklees, Kabiruddin, Matab Masihi, Delhi.
6. Kushta ki Pehli kitab, M.Abdullah, Hamdard, Delhi.
7. Makhzanul Advia, M.Hasan, Matba Munshi Nawal Kishore, Lucknow.
8. Makhzanul Jawahar, G.Jeelani, Refah-Aam Press, Lahore.
9. Minhajul Saidla, Rafiquddin, Publication Div. AMU, Aligarh.
10. Qavaneene Advia, Ayyub Ali, Publication Div AMU, Aligarh.
11. Misbahul Advia, Kulliyate Advia, Hkm Abdus Samad Khan, Aijaz Publishing House, New Delhi.
12. Fune Dawasazi, S.Z.Rehman, Publication Div. AMU.
13. Maat Masihi: Abu Sahal Masihi.
14. Al Qanoon Fit Tib (5th Volume): Avicenna.
15. Minhajuddukkan wa Dasturul Ayan Fit tib: Abu Nasar Attar Israeli.
16. Kitabul Hawi (22 & 23 Volume): Al Razi. Unani Advia Mufrada; Safiuddin, National Council; New Delhi; 1996.
17. Pharmacographica Indica, H. Siad, Hamdard Foundation Karachi, 1991.
18. Pharmacopoeia of India, Ministry of Health, New Delhi , 1983.
19. The Pharmaceutical Codex, 12th Edition, Walter Lund London, The Pharmaceutical Press 1994.
20. Bibliography of Pharmacognosy of Medicinal plants, R.Mitra, EBIS, Lucknow.
21. Chemistry of Medicinal plants, CRUM, New Delhi.
22. Flora of British India, D.Hooker, J, BSM Dehradun.
23. Glimpses of Indian Medicinal Plants, Drug development research, R.B. Arora, IHHMMR, New Delhi.
24. Pharmacognosy, Phytochemistry, Pharmacology and clinical studies of Unani medicinal plants, S.H. Afaq, Publication Div. AMU, Aligarh.
25. Physico-chemical standardization of Unani Medicine, CCRUM, New Delhi.
26. Research & Development of Indigenous drugs, P.C. Dandiya, IHHMMR, New Delhi.
27. Research in Ilmul Advia, S.Z. Rehman, Publication Div. AMU, Aligarh.
28. Standardization of single Unani medicine, Part I – III, CCRUM, New Delhi.
29. Bibliography of Pharmacognosy of Medicinal plants; R.Mitra; EBIS, Lucknow.
30. Instrumental method of analysis; W.H.Hobart; CBS, New Delhi.
31. Modern method of plant analysis; Peach & Tracey; Spriger Verlag Berlin, Gottengen Heidelberg; 1955.
32. Pharmacognosy; V.E Tyler, L.R.Brady, J.E.Robber; Pharmacognosy Lae Faibiger, Philadelphia; 1976.
33. Plant Micro technique; D.A. Johnson; Tata Mc Graw Hill Book Company, New York, 1940.
34. Plant Micro technique; J.D.Alexeder; Tata Mc Graw Hill Book Company.
35. Text book of pharmacognosy; 5th Edition; T.E.Wallis; J& A Churchill Ltd, London; 1967.
36. Trease and Evans pharmacognosy; 15th Edition; William Charles Evans; Saunders An imprint of Elsevier Science; 2002.
37. Basic Nutrition and Diet Therapy, 10th edition , S R Williams, Mosby publishing House
38. Clinical Dietetics and Nutrition, F.P Anita, P Abraham , Oxford Press
39. Nutrition and Health, Topics and Controversies, F Bronner, CRC Press
40. Dietary guidelines for Indians, A Manual, National Institute of nutrition, Hyderabad

41. Nutrition for Mother & Child, National Institute of nutrition, Hyderabad
42. Diet and Heart disease, National Institute of nutrition, Hyderabad
43. Nutrient requirements and Dietary allowances for Indians, Indian Council of Medical research
44. Some Therapeutic Diets, National Institute of nutrition
45. Nutrition and Child Development, K E Elizabeth, Paras Publishing
46. Nutritive values of Indian Foods, Gopalan, Shastri , National Institute of nutrition 1996
47. National Disorder and Community Health, P Gupta, R Thakkar, Saunders An imprint of Elsevier Science 2002.
48. Poucher's; Perfumes, cosmetics and soaps; W. A. Poucher; vol - 1, 2, 3; 9th edition.
49. Small scale manufacturer of soaps and detergents; D.N. Mathur.
50. Clinical safety and efficacy testing of cosmetics; by William C. Waggoner.
51. Cosmetic science and technology series; Eric Jungerman; vol-1-8.
52. Chemistry and technology of the cosmetics and toiletries industries; D.F. William and W.H. Schmitt.
53. Modern Cosmetics; E.G. Thomssen.
54. Harry's Cosmetology; J.B. Willinkinson; 7th edition.
55. Handbook of Synthetic and Herbal Cosmetics; Ankur, Engineer India Research Institute.
56. Pharmaceutical Practice; IIIrd; Winfield, Richards.
57. Remington (The Science and Practice of Pharmacy); 21st; Beringer, Gupta, Hoover; Lippincot, William and Wilkins; 2005.
58. Analytical Chemistry; VIth; Christian; WSE.
59. Vogel, Drug Discovery and Evaluation; IInd.
60. Theory and Practice of Industrial Pharmacy; IIIrd; Lachman, Lieberman, Kanig; Varghese Publishing House.
61. Modern Pharmaceutics, Basic Principles and Systems , 1 & 2, Alexender T. Florence, Juergen Siepmann
62. Martin's Physical Pharmacy & Pharmaceutical Sciences, Vth, Patrick J. Sinco
63. Pharmaceutical Product Development, In Vitro and In Vivo Corelation, Dakshina Murthy Chilukri
64. Pharmaceutical dosage Forms: Tablets, Vol 1,2,3, Larry L. Augsberger, Stephen W. Hoag.
65. Clinical Pharmacology; 9th Edition; P.N.Bennett, M.J Brown; Elsevier, division of Reed Elsevier, India Pvt. Ltd; 2003.
66. CRC Desk reference of clinical pharmacology; M.Ebadi; CRC Desk Reference series editor, Gerald Kerkut; 1998.
67. Drug discovery and evolution pharmacological assays; W.H.Vogel; Spriger Verlag Publication.
68. Essentials of Medical pharmacology; 5th Edition; K.D.-Tripathi; Jay pee Brothers New Delhi; 11003.
69. Fundamentals of experimental pharmacology; M.N.Gosh; Scientific book Agency; 1994.
70. Good man and Gilman's the pharmacological basis of therapeutics; 10th Edition; J.G.Hardman, L.E.Limbird; Mc Graw Hill –Medical publishing division; 2001.
71. Guidelines on animal use; ICMR, New Delhi; 2001.
72. Melmon & Morrrelli's Clinical pharmacology; 4th Edition; S.G. Carruthers, B.B.Hoffman , K.L Melmon , D.W. Nierenberg; Mc Graw Hill –International edition health care professions series; 2003.
73. Research methodology and bio-statistics in pharmacology; M.Asalam & S .Singh; Academic publication, Nai sarak, New Delhi; 2005.
74. Screening Methods of Pharmacology; R.Turner; 1965.
75. Satoshkar, Kale, Bhandarkar's Pharmacology and Pharmacotherapeutics; R.S Satoshkar and Bhandarkar; Popular prakashan Bombay.
76. Text book of medical jurisprudence and toxicology – Dr. C.K. Parikh
77. Text book of forensic medicine and toxicology – Dr. V.V. Pillay

78. Animal origin drugs of Unani Medicine; S.B.Vohra, MSY Khan; CBS New Delhi.
79. Bibliography of Pharmacognosy of Medicinal plants; R.Mitra; EBIS, Lucknow.
80. Chemistry of Medicinal plants; CCRUM New Delhi; CCRUM New Delhi.
81. Standardization of herbal drugs; S.H. Afaq; Publication Division, AMU, Aligarh.
82. Current good manufacturing practices
83. Drug and cosmetic act 1940 and Rules 1945 with latest amendments
84. Drugs and magic remedies (objectionable advertisement act) 1954
85. Prevention of food adulteration (PFA) act
86. Loss pertaining to narcotics
87. Factory and pharmacy act
88. Consumer protection act 1986