UNMRP

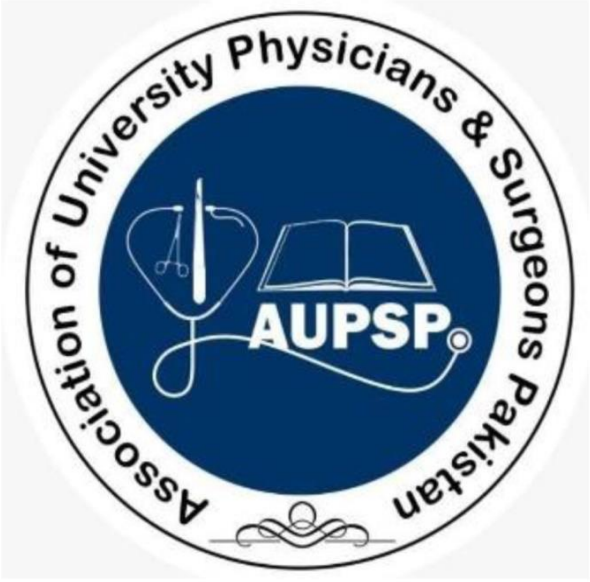
UNIVERSITY NATIONAL MEDICAL RESIDENCY PROGRAM
PAKISTAN

UNIFIED CURRICULA REGISTRY MEDICAL UNIVERSITIES OF PAKISTAN

CURRICULUM

MD DERMATOLOGY

5 years, Residential, Clinical, Stipend based, Full time



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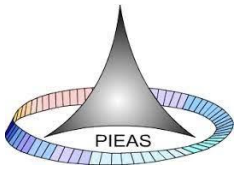

United Nations Academic Network (UNAN)
The UNESCO via the NEQMAP Bangkok

Note: All universities are included the international WHO directory discovered on the website of WHO and are duly recognized by the United Nations Academic Network (UNAN) and the UNESCO via the NEQMAP Bangkok

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STATUTES

Nomenclature Of The Proposed Course

The name of degree program shall be MD Dermatology. This name is well recognized and established for the last many decades worldwide.

Course Title:

MD Dermatology

Training Centers

Departments of Dermatology (accredited by Medical Universities) in affiliated institutes of Medical Universities

Duration of Course

The duration of MD Dermatology course shall be five (5) years (first year in Part I, first two years in Part II and next three years in Part III) with structured training in a recognized department under the guidance of an approved supervisor. The course is structured in three parts:

Part I is structured for the 1st calendar year. The candidate shall undertake didactic training in Basic Medical Sciences, Behavioural Sciences and Biostatistics & Research Methodology. At the end of first year the examination shall be held in Basic Medical Sciences. The clinical training in fundamental concepts of Internal Medicine shall start from the 1st day of enrollment.

Part II is structured for the 1st and 2nd calendar years. The candidate shall undertake clinical training in fundamental concepts of Internal Medicine. At the end of 2nd year, the examination shall be held in fundamental concepts of Internal Medicine. The clinical training in Dermatology shall start from 3rd year onwards in the in recognized institutions.

Part III is structured for 3rd, 4th and 5th calendar years in MD Dermatology. The candidate shall undergo training to achieve educational objectives of MD Dermatology (knowledge & skills) along1 with rotation in relevant fields. Over the six years duration of the course, candidate will spend total time equivalent to one calendar year for research during the training. Research can be done as one block in 5th year of training or it can be done in the form of regular periodic rotations over six years as long as total research time is equivalent to one calendar year.

Admission Criteria:

1. For admission in MD Dermatology course, the candidate shall be required to have:

- MBBS degree
- Completed one year House Job
- One year experience in Dermatology/Internal Medicine/Allied medical discipline in the given order of preference
- Registration with PMDC
- Passed Entry Test conducted by the University & aptitude interview by the Institute concerned
- Having up to the mark credentials as per SZABMU rules (no. of attempts in each professional, any gold medals or distinctions, relevant work experience, Rural/ Army services, research experience in a recognized institution, any research article published in a National or International Journal) may also be considered on case to case basis.

2. Exemptions:

A candidate holding FCPS/MRCP/Diplomate American Board/equivalent qualification in Internal Medicine shall be exempted from Part-I & Part-II Examinations and shall be directly admitted to Part-III Examinations of the specialty, subject to fulfillment of requirements for the examination.

6.

Registration And Enrollment

- Total number of students enrolled for the course must not exceed 2 per supervisor/year.
- The maximum number of trainees that can be attached with a supervisor at a given point of time (inclusive of trainees in all years/phases of MD training), must not exceed 6.
- beds to trainee ratio at the approved teaching site shall be at least 5 beds per trainee.
- The University will approve supervisors for MD courses.
- Candidates selected for the courses after their enrollment at the relevant institutions shall be registered with SZABMU as per prescribed Registration Regulations.

Accreditation Related Issues Of The Institution

A). Faculty

Properly qualified teaching staff in accordance with the requirements of Pakistan Medical and Dental Council (PMDC)

B). Adequate Space

Including class-rooms (with audiovisual aids), demonstration rooms, computer lab and clinical pathology lab etc.

C). Library

Departmental library should have latest editions of recommended books, reference books and latest journals (National and International). Accreditation of Dermatology training program can be suspended on temporary or permanent basis by the University, if the program does not comply with requirements for residents training as laid out in this curriculum. Program should be presented to the University along with a plan for implementation of curriculum for training of residents.

- Programs should have documentation of residents training activities and evaluation on monthly basis.
- To ensure a uniform and standardized quality of training and availability of the training facilities, the University reserves the right to make surprise visits of the training program for monitoring purposes and may take appropriate action if deemed necessary.

AIMS AND OBJECTIVES OF THE COURSE

AIM

The aim of six years MD program in Dermatology is to train residents to acquire the competency of a specialist in the field of Dermatology so that they can become good teachers, researchers and clinicians in their specialty after completion of their training.

GENERAL OBJECTIVES

MD Dermatology training should enable a student to:

Access and apply relevant knowledge to clinical practice:

- Maintain currency of knowledge
- Apply scientific knowledge in practice
- Appropriate to patient need and context
- Critically evaluate new technology

Safely and effectively performs appropriate clinical skills & procedures: Consistently demonstrate sound clinical skills

- Demonstrate procedural knowledge and technical skill at a level appropriate to the level of training
- Demonstrate manual dexterity required to carry out procedures Adapt their skills in the context of each patient and procedure Maintain and acquire new skills
- Approach and carries out procedures with due attention to safety of patient, self and others
- Critically analyze their own clinical performance for continuous improvement

Design and implement effective management plans:

- Recognize the clinical features, accurately diagnose and manage Dermatological problems
- Formulate a well-reasoned provisional diagnosis and management plan based on a thorough history and examination
- Formulate a differential diagnosis based on investigative findings Manage patients in ways that demonstrate sensitivity to their physical, social, cultural and psychological needs
- Recognize disorders of the Dermatological system and differentiate those amenable to medical treatment
- Effectively recognize and manage complications
- Accurately identify the benefits, risks and mechanisms of action of current and evolving treatment modalities
- Indicate alternatives in the process of interpreting investigations and in decision-making
- Manage complexity and uncertainty

- Consider all issues relevant to the patient
  - Identify risk
  - Assess and implement a risk management plan
  - Critically evaluate and integrate new technologies and techniques.

Organize diagnostic testing, imaging and consultation as needed:

- Select medically appropriate investigative tools and monitoring techniques in
- cost-effective and useful manner
- Appraise and interpret appropriate diagnostic imaging and investigations according to patients' needs
- Critically evaluates the advantages and disadvantages of different investigative modalities

Communicate effectively:

- Communicate appropriate information to patients (and their family) about procedures, potentialities and risks associated with procedure in ways that encourage their participation in informed decision making
- Communicate with the patient (and their family) the treatment options including benefits and risks of each
- Communicate with and co-ordinate health management teams to achieve an optimal management of the patient
- Initiate the resolution of misunderstandings or disputes
- Modify communication to accommodate cultural and linguistic sensitivities of the patient

Recognize the value of knowledge and research and its application to clinical practice:

Assume responsibility for self-directed learning
Critically appraise new trends in Dermatology
Facilitate the learning of others

Appreciate ethical issues associated with Dermatology:

- Consistently apply ethical principles
- Identify ethical expectations that impact on medico-legal issues
  Recognize the current legal aspects of informed consent and confidentiality
- Be accountable for the management of their patients.

Professionalism by:

- Employing a critically reflective approach to Dermatology

- Adhering with current regulations concerning workplace harassment Regularly carrying out self and peer reviewed audit
- Acknowledging and have insight into their own limitations
- Acknowledging and learning from mistakes

Work in collaboration with members of an interdisciplinary team where appropriate:

- Collaborate with other professionals in the selection and use of various types of treatments assessing and weighing the indications and contraindications associated with each type
- Develop a care plan for a patient in collaboration with members of an interdisciplinary team
- Employ a consultative approach with colleagues and other professionals
- Recognize the need to refer patients to other professionals.

Management and Leadership

- Effective use of resources to balance patient care and system resources
- Identify and differentiate between system resources and patient needs
- Prioritize needs and demands dealing with limited system resources.
- Manage and lead clinical teams
- Recognize the importance of different types of expertise which contribute to the effective functioning of clinical team
- Maintain clinically relevant and accurate contemporaneous records

Health advocacy:

- Promote health maintenance of patients
- Advocate for appropriate health resource allocation

SPECIFIC LEARNING OUTCOMES

- Residents completing MD Dermatology training will have formal instruction, clinical experience, so that at the end of this training a resident should be able to:

- Diagnose and manage independently common skin diseases, sexually transmitted diseases and leprosy.
- Manage independently and efficiently all medical emergencies related with skin, leprosy and venereal disease.
- Adopt preventive measures at individual and community levels against communicable skin, venereal diseases and leprosy.
- Teach requisite knowledge and laboratory skills to other medical/paramedical team members.
- Adopt a compassionate attitude towards the patients (and their families) under his/ her charge.
- Critically evaluate and initiate investigation for solving problems relating to skin, venereal diseases and leprosy.

Advanced training in Dermatology shall train the resident to;

Identify the following anatomical structures and discuss their role in health:

- Epidermal-dermal junction
- Epidermis

- Dermal appendages
- Dermis

Describe the basic reactions to the skin

- Subcutis

Correctly define each of the following items:

- Macule Papule
- Vesicle
- Bullae
- Plaque
- Nodule
- Tumor
- Scale
- Crust

Discuss the pathophysiology of acne including its natural history and differential

- Erosion
- Fissure
- Ulcer diagnosis

Describe a treatment plan which includes the appropriate dermatologic consultation for each of the following:

- Comedonal acne
- Pustular acne
- Pustulocystic acne
- Acne rosacea
- Acne vulgaris

Discuss the natural history, signs, symptoms and the differential diagnosis of seborrheic dermatitis in all age groups.

Discuss the natural history, develop a differential diagnosis and propose a treatment plan for pruritus.

Discuss the natural history, signs, symptoms, differential diagnosis and treatment for each of the following eczematous dermatoses:

- Contact dermatitis
- Atopic eczema
- Nummular eczema
- Dyshidrotic eczema
- Hand dermatitis
- Stasis dermatitis
- General exfoliative dermatitis

Discuss the natural history, differential diagnosis, signs, symptoms and treatment of the following reactive dermatoses:

- Erythema multiforme
- Erythema nodosum
- Henoch-Schoenlein purpura

Discuss the dermatological manifestations of the following collagen vascular diseases:

- Systemic lupus erythematosus
- Discoid lupus erythematosus
- Scleroderma
- Raynaud's phenomenon

Discuss the chronic vesiculobullous disorders including:

- Dermatitis herpetiformis

Discuss the natural history, signs, symptoms, differential diagnosis and treatment for

Discuss the natural history, differential diagnosis, signs, symptoms and treatment for Urticaria

- Pemphigus vulgaris
- Erythema multiforme
- Epidermolysis bullosa
- Bullous pemphigoid

each of the following:

- Psoriasis
- Parapsoriasis
- Lichen planus
- Pityriasis rosea

each of the following pyodermas:

- Impetigo contagiosum
- Ecthyma
- Pyogenic granuloma
- Pyoderma gangrenosum
- Erythrasma
- Folliculitis
- Furuncles and carbuncles
- Hidradenitis suppurativa
- Erysipelas and ecthyma

Discuss the natural history, signs, symptoms, differential diagnosis and treatment for each of the following fungal infections:

- Tinea capitis
- Tinea corporis
- Tinea pedis and manum
- Onychomycosis
- Tinea cruris
- Tinea barbae
- Moniliasis
- Tinea versicolor

Discuss the natural history, signs, symptoms differential diagnosis and treatment for each of the following viral infections:

- Herpes simplex
- Herpes zoster
- Vaccinia
- Varicella

Discuss the natural history, signs, symptoms, differential diagnosis and treatment of the following venereal diseases:

Discuss the natural history, signs, symptoms, differential diagnosis and treatment of each of the following parasitic diseases:

Discuss the natural history, signs, symptoms, differential diagnosis and treatment of each of the following parasitic diseases:

Discuss the natural history, signs, symptoms, differential diagnosis and treatment of each of the following nevoid anomalies:

- unctional pigmented nevus
- Intradermal pigmented nevus
- Compound intradermal nevus

- Spindle and epithelioid nevus
- Blue nevus
- Rubeola Rubella
- Infectious mononucleosis
- Scarlet fever
- Erythema infectiosum
- Roseola infantum

- Syphilis
- Gonorrhea
- Herpes progenitalis

- Scabies
- Pediculosis
- Swimmers itch
- Spider bites
- Mosquito bites
- Tick bites
- Wasp and bee stings
- Mongolian spot
- Lentigo

Develop a differential diagnosis for a patient presenting with alopecia.

Discuss the natural history and etiology, as well as develop a management and prevention plan for the problem of ingrown nails.

Describe and discuss the following dermatologic problems of the newborn:

- Erythema toxicum neonatorum
- Seborrhea
- Scaling
- Strawberry angioma
- Milia
- Diaper dermatitis

Discuss the natural history, signs, symptoms differential diagnosis and management of warts and calluses.

Discuss the natural history, signs, symptoms and management of the following nodules:

- Molluscum contagiosum
- Keloid
- Neurofibroma
- Lipoma

Discuss the natural history, signs, and symptoms of each of the following premalignant

Clinical Skills:

Carry out the laboratory investigations related to the diseases of skin, STD and Leprosy, such as

- Scrapings of skin, nails and hair for fungus and ecto parasites
- Various types of skin biopsies
- Slit smear examination
- Cytopathological examination
- Tzanck smear
- FNAC, dermal smear
- Woods lamp examination
- Seborrheic keratosis
- Pilar cyst
- Epidermal inclusion cyst
- Dermoid cyst

malignant tumors:

- Actinic keratosis
- Cutaneous horns
- Basal cell carcinoma
- Squamous cell carcinoma
- Keratoacanthoma
- Bowen's disease
- Paget's disease
- Malignant melanoma
- Lentigo maligna melanoma
- Mycosis fungoides
- Leukemia cutis
- Lymphoma cutis

Basic staining procedures e.g Zheil Nelson, Geimsa, PAP smear, Dark ground microscopy

Describe the current treatment modalities for various diseases of skin, STDs and leprosy.

Describe the preventive aspects, education, counseling services to the patient and National Control Programs for Leprosy, STDs HIV infections.

Procedural Skills:

- Photochemotherapy and photo therapy
- Electric cautery, cryotherapy, electrolysis, tattooing, intra-lesional injections, etc.
- Cryosurgery
- Skin punch grafting
- Micrographic surgery
- Wound dressings
- Hair colouring-artificial or permanent dyes
- Nail surgery
- Punch grafting
- Dermabrasion and suction blister grafting
- Chemical face peels with glycolic ad trichloroacetic acid
- Comedone/Milia extraction
- Exicision of growth/papilloma/cysts etc
- Electrosurgery
- Use of CO2 laser
- Sclerotherapy for varicose and telangiectatic veins
- Split skin grafting

More Advanced Procedures:

- Cosmeceuticals
- Tumescent liposuction
- Substances for soft tissue augmentation
- Hair transplantation and alopecia reduction
- Botox treatments, facial rejuvenation
- Skin resurfacing : chemical peels
- Skin resurfacing : dermabrasion
- Skin resurfacing : Laser

Examinations

Part-I Examination

- All candidates admitted in MD Dermatology courses shall appear in Part I examination at the end of 1st calendar year.
- The examination shall be held on biannual basis.
- The candidate who fails to pass the examination in 3 consecutive attempts availed or un-availed, shall be dropped from the course.
- The examination shall have two components:

Paper-I MCQs (single best) 100 Marks
Paper-II SEQs 100 Marks

Subjects to be examined shall be Basic Sciences relevant to Dermatology(Anatomy, Physiology, Biochemistry, Pathology, Pharmacology), Behavioural Sciences and Biostatistics & Research Methodology.

To be eligible to appear in Part-I examination the candidate must submit:

- duly filled, prescribed Admission Form to the Controller of Examinations duly recommended by the Principal/Head of the Institution in which he/she is enrolled;
- a certificate by the Principal/Head of the Institution, that the candidate has attended at least 75% of the lectures, seminars, practical/clinical demonstrations;
- Examination fee as prescribed by the University
- To be declared successful in Part-I examination the candidate must secure 60% marks in each paper.

Part-II Examination

- All candidates admitted in MD Dermatology course shall appear in Part-II examination at the end of 2nd calendar year, and having passed the Part-I examination.

- The examination shall be held on biannual basis.
- The candidate who fails to pass the examination within 3 years of passing the Part examination shall be dropped from the course.

- The examination shall have the following components:
  - Written 200 Marks
  - OSCE 50 Marks
  - Clinical examination 100 Marks
  - Log Book Evaluation 80 Marks (40 marks per year)

- There shall be two written papers of 100 marks each: Papers 1 & 2: Principles of Internal Medicine

- The types of questions shall be of Short/Modified essay type and MCQs(single best).
- Oral & practical/clinical examination shall be held in clinical techniques in Internal Medicine.
- To be declared successful in Part-II examination the candidate must secure 75% marks in each component.
- Only those candidates, who pass in theory papers, will be eligible to appear in the Oral & Practical/clinical Examination.
- The candidates, who have passed written examination but failed in oral & practical/ clinical examination, will re-appear only in oral & practical/clinical examination.
- The maximum number of attempts to re-appear in oral & practical /clinical Examination alone shall be three, after which the candidate shall have to appear in both written and oral & practical/clinical examinations as a whole.

To be eligible to appear in Part-II examination the candidate must submit;

- duly filled, prescribed Admission Form to the Controller of Examinations duly recommended by the Principal/Head of the Institution in which he/she is enrolled; ii. a certificate by the Principal/Head of the Institution, that the candidate has attended at least 90% of the lectures, seminars, practical/clinical demonstrations;
- a certificate of having passed the Part-I examination; iv.
- Examination fee as prescribed by the University.

Part-III Examination

All candidates admitted in MD Dermatology course shall appear in Part- III (clinical) examination at the end of structured training program(end of 5th calendar year), and having passed the part I & II examinations. However, a candidate holding FCPS / MRCP / Diplomate American Board/equivalent qualification in Internal Medicine shall be exempted from Part-I & Part-II Examinations and shall be directly admitted to Part-III Examinations, subject to fulfillment of requirements for the examination.

- The examination shall be held on biannual basis.
- **To be eligible to appear in Part-III examination the candidate must submit;**
- duly filled, prescribed Admission Form to the Controller of Examinations duly recommended by the Principal/Head of the Institution in which he/she is enrolled; ii. a certificate by the Principal/Head of the Institution, that the candidate has attended at least 90% of the lectures, seminars, practical/clinical demonstrations;
- Original Log Book complete in all respect and duly signed by the Supervisor (for Oral & practical/clinical Examination);
- certificates of having passed the Part-I & part-II examinations; Examination fee as prescribed by the University.

- The Part-III clinical examination shall have the following components:
  - Written 300 marks
  - Oral & practical/clinical examination 300 marks
  - Log Book Evaluation 120 marks (40 marks per year)
- There shall be two written papers of 150 marks each.
- Both papers shall have problem-based Short/Modified essay questions and MCQs.
- Oral & practical/clinical examination shall have 300 marks for:
  - 1 Long Case 100
  - 4 Short Cases 100(25 marks each)
  - OSCE 100

To be declared successful in Part-III examination the candidate must secure 75% marks in each component.

- Only those candidates, who pass in theory papers, will be eligible to appear in the Oral & Practical/ Clinical Examination.
- The candidates, who have passed written examination but failed in Oral & Practical/
- Clinical Examination, will re-appear only in Oral & Practical / Clinical examination.
- The maximum number of attempts to re-appear in oral & practical /clinical Examination alone shall be three, after which the candidate shall have to appear in both written and oral & practical/clinical examinations as a whole.
- The candidate with 90% or above marks shall be deemed to have passed with distinction.
- Log Book/Assignments: Through out the length of the course, the performance of the
- candidate shall be recorded on the Log Book.
- The Supervisor shall certify every year that the Log Book is being maintained and signed regularly.
- The Log Book will be developed & approved by the Advanced Studies & Research Board.
- The evaluation will be maintained by the Supervisor (in consultation with the Co - Supervisor, if appointed).
- The performance of the candidate shall be evaluated on annual basis, e.g., 40 marks for each year in six years MD Dermatology course. The total marks for Log Book shall be 200.The log book shall reflect the
- performance of the candidate on following parameters:
  - Year wise record of the competence of skills.
  - Year wise record of the assignments.

- Year wise record of the evaluation regarding attitude & behaviour
- Year wise record of journal club / lectures / presentations / clinico-pathologic
- conferences attended & / or made by the candidate.

Submission / Evaluation of Synopsis

- The candidates shall prepare their synopsis as per guidelines provided by the Advanced Studies & Research Board, available on Medical Universities website.
- The research topic in clinical subject should have 75% component related to basic sciences and 75% component related to applied clinical sciences. The research topic must consist of a reasonable sample size and sufficient numbers of variables to give training to the candidate to conduct research, to collect & analyze the data.
- Synopsis of research project shall be submitted by the end of the 3rd year of MD program. The synopsis after review by an Institutional Review Committee shall be submitted to the University for consideration by the Advanced Studies & Research Board, through the Principal / Dean /Head of the institution.

Submission of Thesis

- Thesis shall be submitted by the candidate duly recommended by the Supervisor.
- The minimum duration between approval of synopsis and submission of thesis shall be one year, but the thesis can not be submitted later than 8 years of enrolment.
- The research thesis must be compiled and bound in accordance with the Thesis Format Guidelines approved by the University and available on website.
- The research thesis will be submitted along with the fee prescribed by the University.

Thesis Examination

- All candidates admitted in MD course shall appear in Part-III thesis examination at the end of 5th year of their training course.
- Only those candidates shall be eligible for thesis evaluation who have passed Part I, II & III (clinical) Examinations.
- The examination shall include thesis evaluation with defense.
- The Vice Chancellor shall appoint three external examiners for thesis evaluation, preferably from other universities and from abroad, out of the panel of examiners approved by the Advanced
- Studies & Research Board. The examiners shall be appointed from respective specialty. Specialists from Internal Medicine and related fields may also be appointed/co-opted,where deemed necessary.
- The thesis shall be sent to the external examiners for evaluation, well in time before the dateof defense examination and should be approved by all the examiners.

- After the approval of thesis by the evaluators, the thesis defense examination shall beheld within the University on such date as may be notified by the Controller of Examinations. The Controller of Examinations shall make appropriate arrangements for the conduct of thesis defense examination in consultation with the supervisor, who will co ordinate the defense examination.
- The thesis defense examination shall be conducted by two External Examiners who shall submit a report on the suitability of the candidate for the award of degree. The supervisor shall act as coordinator.

Award of MD Dermatology Degree

After successful completion of the structured courses of MD Dermatology and qualifying Part-I, Part-II and Part-III examinations, the degree with title MD Dermatology shall be awarded.

CONTENT OUTLINE
Part I MD Dermatology

Basic Sciences:

Student is expected to acquire comprehensive knowledge of Anatomy, Physiology, Pathology (Microbiology), Biochemistry, Pharmacology relevant to the clinical practice appropriate for Dermatology.

1. Anatomy

- Clinical and functional anatomy with pathological and applied relevance
- Histology and embryology of skin and appendage
- Cell Biology: Cytoplasm–Cytoplasmic matrix, cell membrane, cell organelles, cytoskeleton, cell inclusions, cilia and flagella.
- Nucleus – nuclear envelope, nuclear matrix, DNA and other components of chromatin, protein synthesis, nucleolus, nuclear changes indicating cell death.
- Cell cycle, mitosis, meiosis, cell renewal.
- Cellular differentiation and proliferation.
- Tissues of Body: Light and electron microscopic details and structural basis of function, regeneration and degeneration. Confocal microscopy.
- The systems/organs of body – Cellular organization, light and electron microscopic features, structure function correlations, and cellular organization.

Embryology

- General Features of Human Development
- Features of mitotic and meiotic modes of cell division. Genetic consequences of meiotic division.
- Abnormal miototic and meiotic divisions of clinical importance.
- Gametogenesis: origin of germ cells.
- Oogenesis: prenatal and postnatal development of ova.
- Spermatogenesis: proliferation and maturation of male germ cells. Abnormal gametes, their clinical significance.
- Ovulation, fertilization and the consequences of fertilization. Early Embryonic Development:
- Cleavage, morula and blastocyst formation and implantation.
- Formation of the three primary germ layers.
- List of the derivatives of the respective germ layers. Period of the Growing Fetus: Various stages and salient features of the fetus development Extraembryonic Membranes:
- Development, functions and anomalies of yolk sac, amnion, chorion, allantois, umbilical cord and placenta.
- Development of the External Body Form:
- Ectoderm and Mesoderm Origin
- Simple ectoderm epithelium and mesenchyme.
- Connective tissue and blood vessels.

- Basement membrane.
- Neural crest cells-
- (melanocytes)
- Embryonic
- connective tissue
- Nails, hair
- follicles and glands.
- Teratogenesis:
- Factors known to be involved in the development of congenital anomalies especially related to the dermatological system.
- Concept of critical periods.

Histology:

Structural and Functional Organization of the Tissues of Body

- Classification of tissues and identification of various tissues particularly those related to the musculoskeletal system, in routine histological preparations under the light microscope.
- Histological and structural organization of stratum corneum, stratum spinosum, stratum
- basale, epidermis (stratified squamous keratinized epithelium), dermis (dense irregular connective tissue) and subcutaneous connective tissue (Adipose Tissue)
- The Epithelial Tissue
- General structure, functions and classification of epithelia
- Their location in the body
- General characters of serous and mucous membranes
- General structural features of exocrine and endocrine glands The Connective Tissue Cartilage
- Structure of bone marrow. Cell lines seen in haemopoiesis.
- Factors required for bone growth. The Muscular Tissue
- Structural and functional differences between the smooth skeletal and cardiac types of muscle.
- Fine structure of skeletal and cardiac muscle fibers, and its relationship to the mechanism of contraction.
- The Neural Tissue
- The neuron, morphology of the perikaryon and its processes.
- Process of myelination in the peripheral and the central nervous system. Axon terminals and synapses. Nerve fiber degeneration and regeneration.

Surface and Gross Anatomy

- Mucocutaneous junctions and adjoining mucosae.
- Structure and ultra structure of;
- The epidermis
- The dermoepidermal junction

- The dermis
- The sebaceous, eccrine and apocrine glands
- Hairs and nails
- Subcutaneous tissue
- Oral, genital and ocular mucosae
- Lymph and blood vessels and nerve supply of the skin including surface anatomy and applied aspects
- Variations with reference to age, gender, race, anatomical regions etc.

2. Physiology

- Cellular organization, structure function correlations and physiological alterations in the integumentary system of body
- General characteristics and functions of epithelial tissue.
- Types of epithelium
- Classification of glands
- General characteristics of connective tissue
- Major cell types and fibers of connective tissues
- Major functions of each types of connective tissue
- Four major types of membranes
- Functions of the skin including protection, temperature regulation, excretion and secretion, sensitivity, sociosexual functions etc. Composition of the skin, blood supply, components General function of each layer of the skin
- Functions of accessory organ associated with the skin
- Factors that determine skin color

3. Biochemistry

- Membrane biochemistry and signal transduction
- Gene expression and the synthesis of proteins
- Bioenergetics; fuel oxidation and the generation of ATP
- Carbohydrate metabolism
- Lipid metabolism
- Nitrogen metabolism
- Enzymes and biologic catalysis
- Tissue metabolism
- Biotechnology and concepts of molecular biology with special emphasis on use of recombinant DNA techniques in medicine and the molecular biology of cancer General principles of biochemical investigations
- Basic techniques in molecular biology
- Cloning and gene analysis
- Immunochemical techniques
- Protein chemistry and enzymology
- Cloning & PCR
- Protein chemistry and quantification

- Electrophoretic techniques; PAGE Immunoblotting
  - Raising and purifying antibodies
  - ELISA

4. Pharmacology

- The evolution of medical drugs
- British pharmacopeia
- Pharmacokinetic processes
- Pharmacodynamic process
- Drug effect
- Beneficial responses
- Harmful responses
- Allergic responses
- Drug dependence, addiction, abuse and tolerance
- Drug interactions
- Drug prescription in dermatology
- Principles of toxicology
- Antibiotics, antifungals, antivirals, antiparasitics etc.
- Corticosteroids
- Histamine and antihistamine
- Classification of cytotoxic agents and immunosuppressants
- Dermatologically relevant cytotoxics and immunosuppresants
- Azathioprine
- Methotrexate
- Cyclophosphamide
- Cyclosporin
- Tactolimus etc.
- Analgesics, antipyretics and anti inflammatory agents
- Vitamins and skin disorders
- Principles of topical dermatological therapy

5. Pathology

- Pathological alterations at cellular and structural level in infection, inflammation, ischaemia, neoplasia and trauma affecting the skin and appendages Cell Injury and adaptation
- Reversible and Irreversible Injury
- Fatty change, Pathologic calcification
- Necrosis and Gangrene =
- Cellular adaptation
- Atrophy, Hypertrophy,
- Hyperplasia, Metaplasia, Aplasia Inflammation
- Acute inflammation
- Cellular components and chemical mediators of acute inflammation Exudates and transudate
- Sequelae of acute inflammation
- Chronic inflammation
- Etiological factors and pathogenesis
- Distinction between acute and chronic (duration) inflammation
- Histologic hallmarks
- Types and causes of chronic inflammation, non-granulomatous & granulomatous,

- Haemodynamic disorders
- Etiology, pathogenesis, classification and morphological and clinical manifestations of Edema, Haemorrhage, Thrombosis, Embolism, Infarction & Hyperaemia Shock; classification etiology, and pathogenesis, manifestations.
- Compensatory mechanisms involved in shock
- Pathogenesis and possible consequences of thrombosis
- Difference between arterial and venous emboli
- Neoplasia
- Dysplasia and Neoplasia
- Benign and malignant neoplasms
- Etiological factors for neoplasia
- Different modes of metastasis
- Tumor staging system and tumor grade
- Immunity and Hypersensitivity
- Immunity

Related Microbiology

- General aspects of microbiology and replication of bacteria, viruses and fungi Principles of laboratory diagnosis in microbiology (Bacteria, viruses, fungi and parasites) Sterilization and disinfection Bacteriology:
- Normal flora of the skin and adjoining mucosae
- Pathogenesis of bacterial infections
- Classification of medically important bacteria
- Clinically relevant features of the following:
- Gram positive cocci especially streptococci and staphylococci
- Gram negative cocci especially Neisseriae gonorrhea
- Gram positive bacilli especially bacillus anthrax, clostridia, coryniform Gram negative bacilli especially pseudomonas and proteus
- Mycobacteria especially M.tuberculosis, M.leprae and atypical mycobacteria Actinomycetes
- Spirochetes especially Treponema pallidum and Borrelia burgdorferi Chlamydiae especially Chlamydia trachomatis
- Rickettsiae
- Virology
- Pathogenesis of viral infections
- Classification of medically important viruses
- Clinically relevant features of the following:
- Herpes viruses
- Pox viruses
- Papilloma viruses
- Parvovorus B 19
- Measles and rubella viruses
- HIV

- Mycology:
- Basic mycology
- Classification of medically important fungi Parasitology:

- General aspects of dermaatologically relevant parasites, especially Leishmania, Sarcoptes scabiei, Pediculosis.
- Immunization
- Personnel protection from communicable diseases
- Use of investigation and procedures in laboratory
- Basics in allergy and immunology

Special Pathology

- Pathophysiology in different diseases of skin
- Common skin lesions, their causes and treatments.
- Terminology of pathological lesions in skin and subcutaneous tissue Cause, treatment and lesions associated with inflammatory conditions. Bacterial and viral infections including impetigo, furuncles, herpes simplex, herpes zoster and warts.
- Fungal skin infections; various forms of tinea
- Scabies and pediculosis.
- Skin neoplasms. Etiology, predisposing factors metastasis and prognosis of common skin malignancies in Pakistan

6. Biostatistics & Research Methodology

- Introduction to Bio-Statistics
- Introduction to Bio- Medical Research
- Why research is important?
- What research to do?
  - Selecting a Field for Research
  - Drivers for Health Research
  - Participation in National and International Research
  - Participation in Pharmaceutical Company Research
  - Where do research ideas come from
  - Criteria for a good research topic
- Ethics in Health Research
- Writing a Scientific Paper
- Making a Scientific Presentation
- Searching the Literature

Behavioural Sciences

- Bio-Psycho-Social (BPS) Model of Health Care
- Use of Non-medicinal Interventions in Clinical Practice

• Communication Skills
• Counseling
• Informational Skills

- Crisis Intervention/Disaster Management

- Conflict Resolution
- Breaking Bad News
- Medical Ethics, Professionalism and Doctor-Patient Relationship

• Hippocratic Oath

• Four Pillars of Medical Ethics (Autonomy, Beneficence, Non-malficence and Justice)

- Informed Consent and Confidentiality
- Ethical Dilemmas in a Doctor's Life
- Delivery of Culturally Relevant Care and Cultural Sensitivity
- Psychological Aspects of Health and Disease Psychological Aspect of Health
- Psychological Aspect of Disease
- Stress and its Management
- Psychological Aspect of Pain
- Psychological Aspect of Aging

Part II MD Dermatology

- Internal Medicine training for first two years starting from first day of enrollment. Resident should get exposure in the following organ and system competencies (listed below)
- while considering and practicing each system in terms of:
- Medical ethics
- Professional values, student teachers relationship
- Orientation of in-patient, out-patients and Dermatological labs
- Approach to the patient
- History taking
- General physical examination
- Systemic examination
- Routine investigations
- Special investigations
- Diagnostic and therapeutic procedures

Course Contents:

1. Cardiovascular Medicine

Common and / or important Cardiac Problems:

- Arrhythmias
- Ischaemic Heart Disease: acute coronary syndromes, stable angina, atherosclerosis Heart Failure
- Hypertension – including investigation and management of accelerated hypertension Valvular heart disease
- Endocarditis
- Aortic dissection
- Syncope
- Dyslipidaemia

Clinical Science:

- Physiological principles of cardiac cycle and cardiac conduction
- Pharmacology of major drug classes: beta blockers, alpha blockers, ACE inhibitors, Angiotensin receptor blockers (ARBs), anti-platelet agents, thrombolysis, inotropes, calcium channel antagonists, potassium channel activators, diuretics, anti-arrhythmics, anticoagulants, lipid modifying drugs, nitrates, centrally acting anti-hypertensives

2. Diabetes & Endocrine Medicine

Common and / or Important Diabetes Problems:

- Diabetic ketoacidosis
- Non-acidotic hyperosmolar coma / severe hyperglycaemia
- Hypoglycaemia
- Care of the acutely ill diabetic
- Peri-operative diabetes care Common or
- Important Endocrine Problems:
- Adrenocortical insufficiency
- Hyper/Hyponatraemia
- Thyroid dysfunction
- Dyslipidaemia
- Endocrine emergencies: myxoedemic coma, thyrotoxic crisis, Addisonian crisis, hypopituitary coma, phaeochromocytoma crisis

Clinical Science:

- Outline the function, receptors, action, secondary messengers and feedback of hormones
- Pharmacology of major drug classes: insulin, oral anti-diabetics, thyroxine, anti thyroid drugs, corticosteroids, sex hormones, drugs affecting bone metabolism

3. Gastroenterology and Hepatology

Common or Important Problems:

- Peptic Ulceration and Gastritis
- Gastroenteritis

- GI malignancy (oesophagus, gastric, hepatic, pancreatic, colonic)
- Inflammatory bowel disease
- Iron Deficiency anaemia
- Acute GI bleeding
- Acute abdominal pathologies: pancreatitis, cholecystitis, appendicitis, leaking abdominal aortic aneurysm
- Functional disease: irritable bowel syndrome, non-ulcer dyspepsia
- Coeliac disease
- Alcoholic liver disease
- Alcohol withdrawal syndrome
- Acute liver dysfunction: jaundice, ascites, encephalopathy
- Liver cirrhosis
- Gastro-oesophageal reflux disease
- Nutrition: indications, contraindications and ethical dilemmas of nasogastric feeding and EG tubes, IV nutrition, re-feeding syndrome
- Gall stones
- Viral hepatitis
- Auto-immune liver disease
- Pancreatic cancer

Clinical Science:

- Laboratory markers of liver, pancreas and gut dysfunction
- Pharmacology of major drug classes: acid suppressants, anti-spasmodics, laxatives, anti diarrhoea drugs, aminosalicylates, corticosteroids, immunosuppressants, infliximab, pancreatic enzyme supplements

Renal Medicine

Common and / or Important Problems:

- Acute renal failure
- Chronic renal failure
- Glomerulonephritis
- Nephrotic syndrome
- Urinary tract infections
- Urinary Calculus
- Renal replacement therapy
- Disturbances of potassium, acid/base, and fluid balance (and appropriate acute interventions)

Clinical Science:

- Measurement of renal function
- Metabolic perturbations of acute, chronic, and end-stage renal failure and associated treatments

5. Respiratory Medicine

Common and / or Important Respiratory Problems:

- COPD
- Asthma

- Pneumonia
- Pleural disease: Pneumothorax, pleural effusion, mesothelioma
- Lung Cancer
- Respiratory failure and methods of respiratory support
- Pulmonary embolism and DVT
- Tuberculosis
- Interstitial lung disease
- Bronchiectasis
- Respiratory failure and cor-pulmonale
- Pulmonary hypertension

Clinical Science:

- Principles of lung function measurement
- Pharmacology of major drug classes: bronchodilators, inhaled corticosteroids, leukotriene receptor antagonists, immunosuppressants

6. Allergy

Common or Important Allergy Problems

- Anaphylaxis
- Recognition of common allergies; introducing occupation associated allergies Food, drug, latex, insect venom allergies
- Urticaria and angioedema

Clinical Science

- Mechanisms of allergic sensitization: primary and secondary prophylaxis Natural history of allergic diseases
- Mechanisms of action of anti-allergic drugs and immunotherapy
- rinciples and limitations of allergen avoidance

7. Haematology

Common and / or Important Problems:

- Bone marrow failure: causes and complications
- Bleeding disorders: DIC, haemophilia
- Thrombocytopaenia
- anticoagulation treatment: indications, monitoring, management of over- treatment Transfusion reactions
- Anaemia: iron deficient, megaloblastic, haemolysis, sickle cell,
- Thrombophilia: classification; indications and implications of screening Haemolytic disease
- Myelodysplastic syndromes
- Leukaemia
- Lymphoma
- Myeloma
- Myeloproliferative disease
- Inherited disorders of haemoglobin (sickle cell disease, thalassaemias) Amyloid

Clinical Science:

- Structure and function of blood, reticuloendothelial system, erythropoietic tissues 8. Immunology
- Common or Important Problems:
- Anaphylaxis (see also 'Allergy')
- Clinical Science:
- Innate and adaptive immune responses
- Principles of Hypersensitivity and transplantation

9. **Infectious Diseases**

Common and / or Important Problems:

- Fever of Unknown origin
- Complications of sepsis: shock, DIC, ARDS
- Common community acquired infection: LRTI, UTI, skin and soft tissue infections, viral exanthema, gastroenteritis
- CNS infection: meningitis, encephalitis, brain abscess
- HIV and AIDS including ethical considerations of testing
- Infections in immuno-compromised host
- Tuberculosis
- Anti-microbial drug monitoring
- Endocarditis
- Common genito-urinary conditions: non-gonococcal urethritis, gonorrhoea, syphilis

Clinical Science:

- Principles of vaccination
- Pharmacology of major drug classes: penicillins, cephalosporins, tetracyclines, aminoglycosides, macrolides, sulphonamides, quinolones, metronidazole, anti-tuberculous drugs,
- anti-fungals, anti-malarials, anti- helminthics, anti-virals

10. Medicine in the Elderly

Common or Important Problems:

- Deterioration in mobility
- Acute confusion
- Stroke and transient ischaemic attack
- Falls
- Age related pharmacology
- Hypothermia
- Dementia
- Movement disorders including Parkinson's disease
- Depression in the elderly
- Osteoporosis
- Malnutrition
- Osteoarthritis

Clinical Science:

- Effects of ageing on the major organ systems
- Normal laboratory values in older people

11. Musculoskeletal System

Common or Important Problems:

- Septic arthritis
- Rheumatoid arthritis
- Osteoarthritis
- Seronegative arthritides
- Crystal arthropathy
- Osteoporosis – risk factors, and primary and secondary prevention of complications of osteoporosis
- Polymyalgia and temporal arteritis
- Acute connective tissue disease: systemic lupus erythematosus, scleroderma, poly- and dermatomyositis, Sjogren's syndrome, vasculitides

Clinical Science:

- Pharmacology of major drug classes: NSAIDS, corticosteroids, immunosuppressants, colchicines, allopurinol, bisphosphonates

12. Neurology

Common or Important Problems:

- Acute new headache
- Stroke and transient ischaemic attack
- Subarachnoid haemorrhage
- Coma
- Central Nervous System infection: encephalitis, meningitis, brain abscess Raised intra-cranial pressure
- Sudden loss of consciousness including seizure disorders (see also above syncope etc) Acute paralysis: Guillian-Barré, myasthenia gravis, spinal cord lesion
- Multiple sclerosis
- Motor neuron disease

Clinical Science:

- Pathophysiology of pain, speech and language
- Pharmacology of major drug classes: anxiolytics, hypnotics inc. benzodiazepines, antiepileptics, anti-Parkinson's drugs (anti-muscarinics, dopaminergics)

13. Psychiatry

Common and /or Important Problems:

- Suicide and parasuicide

- Substance dependence
- Depression

Clinical Science:

- Principles of substance addiction, and tolerance
- Pharmacology of major drug classes: anti-psychotics, lithium, tricyclic antidepressants, mono-amine oxidase inhibitors, SSRIs, venlafaxine, donepezil, drugs used in treatment of addiction (bupropion, disulpharam, acamprosate, methadone)

14. Cancer and Palliative Care

Common or Important Oncology Problems:

- Hypercalcaemia
- SVC obstruction
- Spinal cord compression
- Neutropenic sepsis
- Common cancers (presentation, diagnosis, staging, treatment principles): lung, bowel, breast, prostate, stomach, oesophagus, bladder) Common or Important Palliative Care Problems:
- Pain: appropriate use, analgesic ladder, side effects, role of radiotherapy Constipation
- Breathlessness
- Nausea and vomiting
- Anxiety and depressed mood

Clinical Science:

- Principles of oncogenesis and metastatic spread
- Apoptosis
- Principles of staging
- Principles of screening
- Pharmacology of major drug classes in palliative care: anti-emetics, opioids, NSAIDS, agents for neuropathic pain, bisphosphonates, laxatives, anxiolytics

15. Clinical Genetics

Common and / or Important problems:

- Down's syndrome
- Turner's syndrome
- Huntington's disease
- Haemochromatosis
- Marfan's syndrome
- Klinefelter's syndrome
- Familial cancer syndromes
- Familial cardiovascular disorders
- Clinical Science:
- Structure and function of human cells, chromosomes, DNA, RNA and cellular proteins Principles of inheritance: Mendelian, sex-linked, mitochondrial
- Principles of pharmacogenetics

- Principles of mutation, polymorphism, trinucleotide repeat disorders Principles of genetic testing including metabolite assays, clinical examination and analysis of nucleic acid (e.g. PCR)

16. Clinical Pharmacology

Common and / or Important problems:

- Corticosteroid treatment: short and long-term complications, bone protection, safe withdrawal of corticosteroids, patient counselling regarding avoid adrenal crises Specific treatment of poisoning with:
- Aspirin,
- Paracetamol
- Tricyclic anti-depressants
- Beta-blockers
- Drug actions at receptor and intracellular level
- Principles of absorption, distribution, metabolism and excretion of drugs Effects of genetics on drug metabolism
- Pharmacological principles of drug interaction
- Outline the effects on drug metabolism of: pregnancy, age, renal and liver

Investigative Competencies

- Outline the Indications for, and Interpret the Following Investigations: Basic blood biochemistry: urea and electrolytes, liver function tests, bone biochemistry, glucose, magnesium
- Cardiac biomarkers and cardiac-specific troponin
- Creatine kinase
- Thyroid function tests
- Inflammatory markers: CRP / ESR
- Arterial Blood Gas analysis
- Cortisol and short Synacthen test
- HbA1C
- Carbon monoxide
- Opiates
    - Digoxin
    - Benzodiazepines
- Clinical Science:
- impairment
- Lipid profile
- Amylase
- Full blood count
- Coagulation studies
- Haemolysis studies
- D dimer
- Blood film report
- Blood / Sputum / urine culture
- Fluid analysis: pleural, cerebro-spinal fluid, ascitic
- Urinalysis and urine microscopy
- Auto-antibodies
- Abdominal radiograph
- Joint radiographs (knee, hip, hands, shoulder, elbow, dorsal spine, ankle)

- **More Advanced Competencies;**
- Viral hepatitis serology
- Stool testing
- HIV testing
- Ultrasound
- Detailed imaging: Barium studies, CT, CT angiography, high resolution CT, MRI

Procedural Competencies

- The trainee is expected to be competent in performing the following procedures by the end of core training. The trainee must be able to outline the indications for these interventions. For invasive procedures, the trainee must recognize the indications for the procedure, the importance of valid consent, aseptic technique, safe use of local anaesthetics and minimization of patient discomfort.

- Venepuncture
- Cannula insertion, including large bore
- Arterial blood gas sampling
- Central venous cannulation
- Initial airway protection: chin lift, Guedel airway, nasal airway, laryngeal mask Basic and, subsequently, advanced cardiorespiratory resuscitation
- Various types of skin biopsies
- Lumbar Puncture

Part III MD Dermatology

Specific Program Contents

- General Dermatology
- Contact dermatitis and occupational dermatoses
- Prick and intradermal testing
- Genetics
- Dressings and wound care
- Dermatopathology
- Venereology
- Genitourinary Medicine
- Infectious, inflammatory diseases and infestations
- Leprosy
- Paediatric Dermatology
- Dermatosurgery (including lasers)
- Skin surgery
- Cutaneous Laser Surgery
- Cosmetic dermatology
- Photodermatology and Photodiagnosis
- Phototherapy and photochemotherapy
- Radiotherapy and Dermatological Oncology
- Dermatological Formulation and Systemic Therapy
- Psychodermatology
- 10.Dermatology and Primary Health Care

1. General Dermatology

- History taking and examination of dermatological patient

- Symptoms & signs in dermatological medicine
- Diagnostic approach to common skin problems
- Type of skin lesions
- Distribution patterns
- Aids in diagnosis of skin diseases etc.
- Structure and development of skin
- Biochemistry and Physiology of epidermis and its appendages including melanin synthesis, keratinization etc.
- Pathophysiologic reactions of skin
- Basic immunology of skin diseases
- Disorders of keratinization and epidermal proliferation
- Disorders affecting skin appendages, hair, nail, sebaceous glands, sweat glands and apocrine glands etc.
- Neoplastic disorders of skin
- Genodermatosis
- Vesiculo bullous diseases, e.g. pemphigus, pemphigoid, erythema multiforme, dermatitis herpetiformis etc.
- Dermatitis:- exogenous – contact dermatitis, patch testing, endogenous – atopic acquired endogenous nummular
- Disorders of pigmentation
- Disorders of collagen and connective tissue
- Disorders of hair, nail, sweat glands, sebaceous glands, apocrine glands, mastocytosis etc. Disorders of mucous membranes, stamotological disorders
- Disorders involving genitalia
- Disorders due to physical agents, heat, cold, light, radiation etc.
- Disorders due to chemical agents – reactions to chemicals, occupational dermatosis Autoimmune connective tissue disorders
- Lichen planus and lichenoid eruptions
- Pyoderma
- Fungal infections-superficial and deep
- Viral infection
- Parasitic infestations, insect bites etc.
- Dermatology in relation to internal medicine
- Nutritional diseases – protein and vitamin deficiencies
- External Metabolic disorders

- Diabetes mellitus
- Amino acid metabolism
- Lips and ear

- Porphyrin metabolism
- Lipoidosis
- Dysproteinemias and agamma glubulineias etc. Carcinoid syndrome
-

- Breast Glycolipid lipoidosis oral cavity
- Calcinosis cutis
- Histiocytosis
- Hematological systems-reticulosis-leukema etc.
- Gastro – intestinal system
- Endocrine system
- Neuroctaneous disorder
- Psychocutaneous disorders
- Dermatoses of pregnancy
- Allergic disorders
- Anaphlaxis – urticaria / angioedema, serum sickness, reactions to drugs etc. Diseases of veins, arteries and lymphatics draining the skin
- Disorders of connective tissue and subcutaneous fat
- Regional dermatoses affecting
- Genital and perianal area
- Umbilicus etc.

2. Dermatopathology

- To be able to correctly interpret a written dermatopathology report and to offer discussion and differential diagnosis of the described distinguishing histological features. To be able to choose a range of laboratory techniques to optimize diagnostic accuracy.

- Define the normal histology of the skin and subcutaneous tissues
- Describe histological features of individual skin diseases.
- Explain the relationship of biopsy procedure to histological artefact.
- Define correct handling of specimens, including fixation, transport medium Outline histological laboratory techniques, including special stains and immunochemistry, and their value in specific diseases.
- Discusses appropriate differential diagnoses with histopathology team. Interprets special stains/ immunohistochemistry correctly.

3. Venereal Disorders

- Anatomy of male and female genitalia
- Syphilis and other treponematoses, immunology, pathology, diagnosis, treatment, control etc. Gonococcal uretheritis and complications
- Lymphogranuloma venereum
- Chancroid
- Granuloma inguinale
- Other disorders involving male and female genitalia
- Sexually transmitted diseases (STDs) and control
- STD and Reproductive health
- Epidemiology of STD'S
- AIDS; transmission, prevention, clinical manifestations, prophylaxis of opportunistic infections, Anti-retroviral therapy, treatment in HIV+ve STD cases.

4. Leprosy

- Epidemiological aspects
- Structure, biochemistry, microbiology of Mycobacterium leprae
- Pathogenesis
- Immunology and molecular biological aspects
- Diagnosis – clinical features, classifications, laboratory aids
- Reactive phase – Ocular involvement, Bone involvement
- Approach to the patient with leprosy
- Systemic involvement (ocular, bone, mucosa, testes and endocrine etc.) Pregnancy and leprosy
- HIV infection and leprosy
- Therapeutic aspects including newer drugs
- Immunotherapy
- Disabilities, deformities and rehabilitation
- Prevention, education and counseling
- Leprosy control and rehabilitation etc.

5. Pediatric Dermatology

- Skin diseases common/specific to infancy and childhood.
- Mechanisms/pathophysiology of diseases specific to childhood.
- Childhood manifestations of skin disease.
- Papulosquamous diseases
- Bullous diseases
- Viral, bacterial and fungal infections of the skin
- Infestations of the skin
- Drug reactions
- Genodermatoses
- Developmental anomalies
- Neonatal skin disorders
- Disorders of cornification
- Hair and nail disorders
- Acne
- Skin malignancies
- Connective tissue
- diseases Granulomatous
- diseases Vascular
- Paediatric specific pharmacology/prescribing.
- History taking from parents
- Skin biopsy techniques
- Potassium hydroxide examinations
- Tzanck examinations
- Mineral oil examinations
- Hair mounts
- Fungal cultures

- Curettage and electrodesiccation
- Cryotherapy
- Surgical excisions
- The course would consist of lesions in basic techniques of dermatosurgery of various
- Photochemotherapy and photo therapy
- Electric cautery, cryotherapy, electrolysis, tattooing, intra-lesional injections, etc. Cryosurgery
- Skin punch grafting
- Micrographic surgery
- Wound dressings
- Cosmeceuticals
- Hair colouring-artificial or permanent dyes Botox treatments, facial rejuvenation
- anomalies
- Melanocytic lesions
- Laser therapy

Dermatosurgery

- Diseases and laser.
- Pigmentary abnormalities
- Skin resurfacing : chemical peels
- Skin resurfacing : dermabrasion
- Skin resurfacing : Laser
- Sclerotherapy for varicose and telangiectatic veins
- Tumescent liposuction
- Substances for soft tissue augmentation
- Hair transplantation and alopecia reduction
- Nail surgery
- For Vitiligo

- Punch grafting
- Split skin grafting
- Dermabrasion and suction blister
- grafting Tattooing For Acne
- Dermabrasion
- Scar revision
- Chemical peeling
- For Melasma
- Chemical face peels with glycolic ad trichloroacetic acid
- For Nevi and Keloid etc.
- Cryosurgery
- Excision
- Electrosurgery
- Use of CO2 laser

7. Radiotherapy and Dermatological Oncology

- Common clinical and histopathological features of primary skin neoplasms Differentiating benign from malignant skin disorders
- Current methods of molecular analysis in diagnosis and treatment of skin cancer Define the current American Joint Commission on Cancer (AJCC) or other approved staging systems for melanoma, non-melanoma skin cancers and skin lymphoma Patterns of locoregional and distant metastatic
- Principles of skin oncology for;
- Topical chemotherapy
- Cryotherapy
- Photodynamic therapy
- Surgical treatment including excision and direct closure of margins
- Radiotherapy including orthovoltage and electron radiotherapy
- Chemotherapy and immunotherapy

8. Dermatological Formulation and Systemic Therapy

- Topical Therapy
- Pharmacokinetics and topical applications of drugs
- Principles of topical therapy, topical formulations Topical Agents
- Glucocorticoids
- Analgesics
- Anesthetics
- Antinflammatory
- Anti microbial
- Anti parasitic, antiviral, antifungal
- Antiperspirants

- Antipruritic
- Astringents, bleaching agents, keratolytics and keratoplastic ents.
- Sun- screens, cytotoxic agents, cosmetics and skin care in practice, emollients and moisturizer etc. Systemic Therapy
- Systemic glucocorticoids
- Antihistaminics
- Antibiotics, sulfones, aminoquinolines
- Cytotoxic and antimetabolic agents
- Oral retinoids
- Antiviral drugs, oral antifungal agents, immunosuppressive and immunomodulatory drugs, thalidomide.

9. Psychodermatology

- Clinical features of psychodermatoses
- Serious or incidental psychiatric morbidity in patients presenting with or being followed up for skin disease
- Features of depression, and risk factors for suicide
- Basic use of antidepressants, tranquilizers and antipsychotics
- Structure of liaison services to psychiatry and addiction
- Psychiatric history and mental state examination

RESEARCH/ THESIS WRITING

RESEARCH/ THESIS WRITING

Total of one year will be allocated for work on a research project with thesis writing. Project must be completed and thesis be submitted before the end of training. Research can be done as one block in 5th year of training or it can be stretched over six years of training in the form of regular periodic rotations during the course as long as total research time is equivalent to one calendar year.

Research Experience

The active research component program must ensure meaningful, supervised research experience with appropriate protected time for each resident while maintaining the essential clinical experience. Recent productivity by the program faculty and by the residents will be required, including publications in peer-reviewed journals. Residents must learn the design and interpretation of research studies, responsible use of informed consent, and research methodology and interpretation of data. The program must provide instruction in the critical assessment of new therapies and of the surgical literature. Residents should be advised and supervised by qualified staff members in the conduct of research.

Clinical Research

Each resident will participate in at least one clinical research study to become familiar with:

1. Research design

- Research involving human subjects including informed consent and operations of the Institutional Review Board and ethics of human experimentation
- Data collection and data analysis
- Research ethics and honesty
- Peer review process

This usually is done during the consultation and outpatient clinic rotations.

Case Studies or Literature Reviews

Each resident will write, and submit for publication in a peer-reviewed journal, a case study or literature review on a topic of his/her choice.

Laboratory Research

Bench Research

Participation in laboratory research is at the option of the resident and may be arranged through any faculty member of the Division. When appropriate, the research may be done at other institutions.

Research involving animals

Each resident participating in research involving animals is required to:

- Become familiar with the pertinent Rules and Regulations of the SZABMUi.e. those relating to "Health and Medical Surveillance Program

for Laboratory Animal Care Personnel" and "Care and Use of Vertebrate Animals as Subjects in Research and Teaching"

- Read the "Guide for the Care and Use of Laboratory Animals"
- View the videotape of the symposium on Humane Animal Care

Research involving Radioactivity

Each resident participating in research involving radioactive materials is required to

- Attend a Radiation Review session
- Work with an Authorized User and receive appropriate instruction fromhim/her.

METHODS OF INSTRUCTION/COURSE CONDUCTION

As a policy, active participation of students at all levels will be encouraged. Following teaching modalities will be employed:

- Lectures
- Seminar Presentation and Journal Club Presentations
- Group Discussions
- Grand Rounds
- Clinico-pathological Conferences
- SEQ as assignments on the content areas
- Skill teaching in ICU, emergency and ward settings
- Attend genetic clinics and rounds for at least one month.
- Attend sessions of genetic counseling
- Self study, assignments and use of internet
- Bedside teaching rounds in ward
- OPD & Follow up clinics
- Long and short case presentations

In addition to the conventional teaching methodologies interactive strategies like conferences will also be introduced to improve both communication and clinical skills in the upcoming consultants. Conferences must be conducted regularly as scheduled and attended by all available faculty and residents. Residents must actively request autopsies and participate in formal review of gross and microscopic pathological material from patients who have been under their care. It is essential that residents participate in planning and in conducting conferences.

1. Clinical Case Conference

Each resident will be responsible for at least one clinical case conference each month. The cases discussed may be those seen on either the consultation or clinic service or during rotations in specialty areas. The resident, with the advice of the Attending Physician on the
Consultation Service, will prepare and present the case(s) and review the relevant literature.

2. Monthly Student Meetings

Each affiliated medical college approved to conduct training for MD Dermatology will provide a room for student meetings/discussions such as:

a. Journal Club Meeting

b. Core Curriculum Meetings
c. Skill Development

a. Journal Club Meeting

A resident will be assigned to present, in depth, a research article or topic of his/her choice of actual or potential broad interest and/or application. Two hours

per month should be allocated to discussion of any current articles or topics introduced by any participant.
Faculty or outside researchers will be invited to present outlines or results of current research activities. The article should be critically evaluated and its applicable results should be highlighted, which can be incorporated in clinical practice. Record of all such articles should be maintained in the relevant department.

b. Core Curriculum Meetings

All the core topics of Dermatology should be thoroughly discussed during these sessions. The duration of each session should be at least two hours once a month. It should be chaired by the chief resident (elected by the residents of the relevant discipline). Each resident should be given an opportunity to brainstorm all topics included in the course and to generate new ideas regarding the improvement of the course structure

c. Skill Development

Two hours twice a month should be assigned for learning and practicing clinical skills.

List of skills to be learnt during these sessions is as follows:

- Residents must develop a comprehensive understanding of the indications,contraindications, limitations, complications, techniques, and interpretation of results of those technical procedures integral to the discipline (mentioned in pg. 10).
- Residents must acquire knowledge of and skill in educating patients about thetechnique, rationale and ramifications of procedures and in obtaining procedure specific informed consent. Faculty supervision of residents in their performance is required, and each resident's experience in such procedures must be documented by the program director.
- Residents must have instruction in the evaluation of medical literature, clinical epidemiology,
- clinical study design, relative and absolute risks of disease, medical statistics and medical decision-making.
- Training must include cultural, social, family, behavioral and economic issues, such asconfidentiality of information, indications for life support systems, and allocation of limited resources.
- Residents must be taught the social and economic impact of their decisions onpatients, the primary care physician and society. This can be achieved by attending the bioethics lectures and becoming familiar with Project Professionalism Manual such as that of the American Board of Internal Medicine.
- Residents should have instruction and experience with patient counseling skills and community education.
- This training should emphasize effective communication techniques for diversepopulations, as well as organizational resources useful for patient and community education. 8. Residents may attend the series of

lectures on Nuclear Medicine procedures (radionuclide scanning and localization tests and therapy) presented to the Radiology residents.

- Residents should have experience in the performance of clinical laboratory and radionuclide studies and basic laboratory techniques, including quality control, quality assurance and proficiency standards.
- Each resident will observe and participate in each of the following procedures, preferably done on patients firstly under supervision and then independently (pg.12-13)

3. Annual Grand Meeting

- Once a year all residents enrolled for MD Dermatology should be invited to the annual meeting at MEDICAL UNIVERSITIES
- One full day will be allocated to this event. All the chief residents from affiliated institutes will present their annual reports. Issues and concerns related to their relevant courses will be discussed. Feedback should be collected and suggestions should be sought in order to involve
- residents in decision making.
- The research work done by residents and their literary work may be displayed. In the evening an informal gathering and dinner can be arranged. This will help in creating a sense of belonging and ownership among students and
- the faculty.

LOG BOOK

The residents must maintain a log book and get it signed regularly by the supervisor. A complete and duly certified log book should be part of the requirement to sit for MD examination. Log book should include adequate number of diagnostic and therapeutic procedures observed and performed, the indications for the procedure, any complications and the interpretation of the results, routine and emergency management of patients, case presentations in CPCs, journal club meetings and literature review.

Proposed Format of Log Book is as follows:
The procedures shall be entered in the log book as per format
Residents should become proficient in performing the related procedures
After observing the technique, they will be observed while performing the procedure and, when deemed competent by the supervising physician, will perform it independently. They will be responsible for obtaining informed consent, performing the procedure, reviewing the results with the pathologist and the attending physician and informing the patient and, where appropriate, the referring physician of the results.

EVALUATION & ASSESSMENT STRATEGIES

Assessment

It will consist of action and professional growth oriented student-centered integrated assessment with an additional component of informal internal assessment, formative assessment and measurement-based summative assessment.

Student-Centered Integrated Assessment

It views students as decision-makers in need of information about their own performance. Integrated Assessment is meant to give students responsibility for deciding what to

evaluate, as well as how to evaluate it, encourages students to own the evaluation and to use it as a basis for self-improvement. Therefore, it tends to be growth-oriented, student
controlled, collaborative, dynamic, contextualized, informal, flexible and actionoriented. In the proposed curriculum, it will be based on:

- Self Assessment by the student
- Peer Assessment
- Informal Internal Assessment by the Faculty

Self Assessment by the Student

Each student will be provided with a pre-designed self-assessment form to evaluate his/ her level
of comfort and competency in dealing with different relevant clinical situations. It will be the responsibility of the student to correctly identify his/her areas of weakness and to take appropriate measures to address those weaknesses.

Peer Assessment

The students will also be expected to evaluate their peers after the monthly small group meeting. These should be followed by a constructive feedback according to the prescribed guidelines and should be non- judgmental in nature. This will enable students to become good mentors in future.

Informal Internal Assessment by the Faculty

There will be no formal allocation of marks for the component of Internal Assessment so that students are willing to confront their weaknessesrather than hiding them from their instructors.

It will include:

a. Punctuality

b. Ward work

c. Monthly assessment (written tests to indicate particular areas of weaknesses) d. Participation in interactive sessions

Formative Assessment

Will help to improve the existing instructional methods and the curriculum in use **Feedback to the faculty by the students:**

Summative Assessment

It will be carried out at the end of the program to empirically evaluate cognitive, psychomotor and affective domains in order to award degrees for successful completion of

After every three months, students will be providing a written feedback

regarding their course components and teaching methods. This will help to

identify strengths and weaknesses of the relevant course, faculty members

and to ascertain areas for further improvement. courses.

MD DERMATOLOGY EXAMINATIONS

Part I MD Dermatology Total Marks: 200

All candidates admitted in MD Dermatology course shall appear in Part I examination at the end of first calendar year.

Components of Part-I Examination:

Paper-I, 100 MCQs (single best, having one mark each) 100 Marks

Paper-II, 10 SEQs (having 10 marks each) 100 Marks

Topics included in paper: Paper-I Paper-II

- Anatomy (20 MCQs) (2 SEQs)
- Physiology (20 MCQs) (2 SEQS)
- Pathology (20 MCQs) (2 SEQs)
- Biochemistry (15 MCQs) (1 SEQS)
- Pharmacology (10 MCQs) (1 SEQ)
- Behavioural Sciences (10 MCQs) (1 SEQ)
- Biostatistics & Research Methodology (05 MCQs) (1 SEQ)

Part II MD Dermatology Total Marks: 430

All candidates admitted in MD Dermatology course shall appear in Part II examination at the end of 2nd calendar year.

There shall be two written papers of 100 marks each, Oral & practical/ clinical examination of 150 marks and log book assessment of 80 marks.

Topics included in paper 1

Principles of internal medicine including;

- Pulmonary Medicine (10 MCQs)
- Allergy and Immunology (10 MCQs)
- Cardiovascular Illness (10 MCQs)
- Diabetes & Endocrinology (10 MCQs)
- Infectious Disease (10 MCQs)

Topics included in paper 2

Principles of internal medicine including;

- Gastroenterology & Hepatology (10 MCQs)
- Neurology (10 MCQs)
- Hematology & Oncology (10 MCQs)
- Nephrology (10 MCQs)
- Rheumatology (10 MCQs)

Components of Part II Examination

Theory:

Paper 1: 100 Marks 3 Hours

10 SEQs (No Choice; 05 marks each) 50 Marks

50 MCQs 50 Marks

Paper 2: 100 Marks 3 Hours
10 SEQs (No Choice; 05 marks each) 50 Marks
50 MCQs 50 Marks

Only those candidates, who pass in theory papers, will be eligible to appear in the Oral & Practical/Clinical Examination.
Oral & practical/clinical examination shall be held in basic clinical techniques relevant to internal medicine.

OSCE 50 Marks
10 stations each carrying 05 marks of 10 minutes duration; each evaluating performance based assessment with five of them interactive

Clinical 100 Marks
Four short cases (15 marks each) 60 Marks
One long case: 40 Marks

Log Book 80 Marks

Part III MD Dermatology

Total Marks: 920
All candidates admitted in MD course shall appear in Part-III examination at the end of structured training programme (end of 5th calendar year and after clearing Part I & II examinations).
There shall be two written papers of 150 marks each, Oral & Practical/ Clinical examination of 300 marks, log book assessment of 120 marks and thesis examination of 200 marks.

Topics included in paper 1
- General Dermatology (30 MCQs)
- Venereology & Leprosy (20 MCQs)
- Dermatological Therapeutics (15 MCQs)
- Dermatopathology (05 MCQs)
- Psychodermatology (05 MCQs)

Topics included in paper 2
- Paediatric Dermatology (30 MCQs)
- Dermatosurgery (including lasers) (30 MCQs)
- Dermatological Oncology (15 MCQs)

Components of Part III Examination
Theory
Paper I 150 Marks 3 Hours
15 SEQs (No Choice) 75 Marks
75 MCQs 75 Marks

Paper II 150 Marks 3 Hours
15 SEQs (No Choice) 75 Marks

75 MCQs 75 Marks

Only those candidates, who pass in theory papers, will be eligible to appear in the Oral & Practical/ Clinical Examination.

OSCE 100 Marks
10 stations, each carrying 10 marks of 10 minutes duration;
each evaluating performance based assessment with five
of them interactive.

Clinical 200 Marks
Four short cases (25 marks each) 100 Marks
One long case: 100 Marks

Log Book 120 Marks

Thesis Examination 200 Marks
All candidates admitted in MD courses shall appear in Part-III thesis examination at the end of 5th calendar year of the MD program and not later than 8th calendar year of enrolment. The examination shall include thesis evaluation with defense.