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**CURRICULUM/STATUTES & REGULATIONS**

**FOR**

**5 YEARS DEGREE PROGRAMME**

**IN**

**PSYCHIATRY**

**(MD PSYCHIATRY)**

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**UNIVERSITY OF HEALTH SCIENCES  
LAHORE**

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**STATUTES**

### **1. Nomenclature Of The Proposed Course**

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

### **2. Course Title:**

MD Psychiatry

### **3. Training Centers**

Departments of Psychiatry (accredited by UHS) in affiliated institutes of University of Health Sciences Lahore.

### **4. Duration of Course**

The duration of MD Psychiatry 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 1<sup>st</sup> calendar year. The candidate shall undertake didactic training in Basic Medical Sciences, Neuroradiology, 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 1<sup>st</sup> day of enrollment.

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

**Part III** is structured for 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> calendar years in MD Psychiatry. The candidate shall undergo training to achieve educational objectives of MD Psychiatry (knowledge & skills) along with rotation in relevant fields. Over the five 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 5<sup>th</sup> year of training or it can be done in the form of regular periodic rotations over five years as long as total research time is equivalent to one calendar year.

### **5. Admission Criteria**

1. For admission in MD Psychiatry course, the candidate shall be required to have:
  - MBBS degree
  - Completed one year House Job
  - One year experience in Psychiatry/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 UHS 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, 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 UHS as per prescribed Registration Regulations.

## ***7. Accreditation Related Issues of the Institution***

### **1. Faculty**

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

### **2. Adequate Space**

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

### **3. Library**

Departmental library should have latest editions of recommended books, reference books and latest journals (National and International).

- Accreditation of MD Psychiatry 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 five years MD programme in Psychiatry is to train residents to acquire the competency of a specialist in the field of Psychiatry so that they can become good teachers, researchers and clinicians in their specialty after completion of their training.

### **GENERAL OBJECTIVES**

MD Psychiatry 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 psychiatric 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 nervous system and differentiate those amenable to psychiatric 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 a 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 surgery 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 surgical environment
  - 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 Psychiatry
  - Facilitate the learning of others.
- Appreciate ethical issues associated with Psychiatry:
  - 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 Psychiatry
  - 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
  - Promote health maintenance of colleagues and self scholar and teacher

## SPECIFIC LEARNING OUTCOMES

Following competencies are expected from a resident completing MD Psychiatry training;

- Must have supervised experience in the evaluation and treatment of patients. These patients should be of different ages and gender from across the life cycle, and from a variety of ethnic, racial, sociocultural, and economic backgrounds
- Should be familiar with Axis III conditions that can affect evaluation and care (e.g., CNS lesions, HIV/AIDS, and other medical conditions).
- Function as a competent psychiatrist – a physician specialized in the diagnosis, treatment and rehabilitation of psychiatric disorders (mental, emotional and addictive disorders).
- Having an understanding of the biological, psychological, social, economic and emotional aspects of psychiatric illnesses including possible preventive measures, primitive measures for mental wellbeing and contemporary advances and developments.
- Formulating a clinical diagnosis for patients by conducting patient interviews, eliciting a clear and accurate history; performing physical, neurological, and mental status examination, including appropriate diagnostic studies; completing a systematic recording of findings; relating history and clinical findings to the relevant biological psychological, behavioral, and sociocultural issues associated with etiology and treatment
- Carry out detailed assessments including appropriate investigations.
- Using pharmacological regimens, including concurrent use of medications and psychotherapy
- Understanding the indications and uses of physical treatments such as electroconvulsive therapy (ECT) and monitor side-effects.
- Evaluate and treat psychological and interpersonal problems, including providing psychotherapy and counseling in selected cases.
- Acquire a spirit of scientific enquiry and be oriented to principles of research methodology and epidemiology.
- Act as a consultant to primary care physicians and be an effective leader of a multidisciplinary mental health team comprising of other mental health professionals such as psychologists, social workers, psychiatric nursing professionals.
- Deal with the legal aspects of psychiatric illness.
- Assume the role of a postgraduate or undergraduate teacher.
- Be informed of the mental health programmes, policies, mental health care infrastructure and issues in community care of mentally ill in the country. Developing a differential diagnosis and treatment plan for all psychiatric disorders in the current standard nomenclature, i.e., DSM, taking into consideration all relevant data
- Applying supportive, psychodynamic, and cognitive-behavioral psychotherapies to both brief and long-term individual practice, as well as to assuring exposure to family, couples, group and other individual evidence-based psychotherapies;

- Providing psychiatric consultation in a variety of medical and surgical settings
- Providing care and treatment for the chronically-mentally ill with appropriate psychopharmacologic, psychotherapeutic, and social rehabilitative interventions;
- Participating in psychiatric administration, especially leadership of interdisciplinary teams, including supervised experience in quality assurance and performance improvement
- Providing psychiatric care to patients who are receiving treatment from non-medical therapists and coordinating such treatment
- Recognizing and appropriately responding to family violence (e.g., child, partner, and elder physical, emotional, and sexual abuse and neglect) and its effect on both victims and perpetrators.

### **Research Experience:**

- All residents in the categorical program are required to complete an academic outcomes-based research project during their training. This project can consist of original bench top laboratory research, clinical research or a combination of both with an intent of acquisition of skills to lead a multidisciplinary team of general physicians, nurses, psychologists, social workers and other mental health professionals.. The research work shall be compiled in the form of a thesis which is to be submitted for evaluation by each resident before end of the training. The designated Faculty will organize and mentor the residents through the process, as well as journal clubs to teach critical appraisal of the literature. The acquisition and refinement of research skills, including the evaluation and clinical care of research subjects, development of research protocols, performance of clinical and/or laboratory research, and the preparation and presentation of study results is expected from each resident. Residents join specialty branches or sections that investigate the mechanisms or treatment of major psychiatric illnesses. Emphasis in research is on
  - Psychopharmacology
  - Neuro-endocrinology
  - Brain imaging
  - Epidemiology of psychiatric disorder

**REGULATIONS****1. Scheme of the Course**

A summary of five years course in MD Psychiatry is presented as under:

<b>Course Structure</b>	<b>Components</b>	<b>Examination</b>
<b>Part I</b>	<ul style="list-style-type: none"> <li>• <b>Basic Medical Sciences</b> Anatomy, Physiology, Biochemistry, Pathology, Pharmacology, Neuroradiology, Behavioural Sciences and Biostatistics &amp; Research Methodology.</li> </ul>	Part-I examination at the end of 1 <sup>st</sup> year of MD Psychiatry programme. <ul style="list-style-type: none"> <li>• <b>Written:</b> Paper I: MCQs Paper II: SEQs</li> </ul>
<b>Part-II</b>	<ul style="list-style-type: none"> <li>• <b>Fundamental Concepts in Internal Medicine:</b> Training in clinical techniques of Internal Medicine with compulsory rotations for two years starting from the first day of enrollment</li> </ul>	Part-II examination at the end of 2 <sup>nd</sup> year of MD Psychiatry programme. <ul style="list-style-type: none"> <li>• <b>Written:</b> Papers 1 &amp; 2: Problem-based questions in Internal Medicine</li> <li>• <b>Oral &amp; Practical/ Clinical Examination</b> <ul style="list-style-type: none"> <li>• OSCE</li> <li>• Clinical Examination (Long case, Short cases)</li> </ul> </li> <li>• <b>Log Book</b></li> </ul>
<b>Part-III</b>	<p style="text-align: center;"><b><u>Clinical component of Part III</u></b></p> <ul style="list-style-type: none"> <li>• <b>Professional Education in Psychiatry</b> Training in Psychiatry during 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> years of MD programme</li> </ul> <p>Three years of training with compulsory/ optional rotations in related fields</p> <p style="text-align: center;"><b><u>Research component of Part III</u></b></p> <ul style="list-style-type: none"> <li>• <b>Research and Thesis Writing:</b> Research work/Thesis writing project must be completed and thesis be submitted before the end of training.</li> </ul>	Part-III examination in specialized components of Psychiatry at the end of 5 <sup>th</sup> year of MD programme <ul style="list-style-type: none"> <li>• <b>Written:</b> Paper 1 &amp; 2: Problem-based questions in the subject</li> <li>• <b>Oral &amp; Practical / Clinical Examination</b> <ul style="list-style-type: none"> <li>• OSCE</li> <li>• Clinical Examination (Long case, Short cases )</li> </ul> </li> <li>• <b>Log Book</b></li> </ul> <p>Part-III thesis examination with defence at the end of fifth (5<sup>th</sup>) year of MD Psychiatry programme.</p>

## **2. Examinations**

### **Part-I Examination**

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

Paper-I MCQs (single best)	100 Marks
Paper-II SEQs	100 Marks
5. Subjects to be examined shall be Basic Sciences relevant to Psychiatry (Anatomy, Physiology, Biochemistry, Pathology, Pharmacology), Neuroradiology, Behavioural Sciences and Biostatistics & Research Methodology.
6. To be eligible to appear in Part-I examination the candidate must submit;
  - i. 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 75% of the lectures, seminars, practical/clinical demonstrations;
  - iii. Examination fee as prescribed by the University
7. To be declared successful in Part-I examination the candidate must secure 60% marks in each paper.

**Part-II Examination**

1. All candidates admitted in MD Psychiatry courses shall appear in Part-II examination at the end of 2nd calendar year, and having passed Part-I examination.
2. The examination shall be held on biannual basis.
3. The candidate who fails to pass the examination within 3 years of passing the Part-I examination shall be dropped from the course.
4. The examination shall have the following components:
  - a. Written 200 Marks
  - b. OSCE 50 Marks
  - c. Clinical examination 100 Marks
  - d. Log Book Evaluation 80 Marks (40 marks per year)
5. There shall be two written papers of 100 marks each:  
Paper 1 & 2: Principles of Internal Medicine
6. The types of questions shall be of Short/Modified essay type and MCQs (single best).
7. Oral & practical/clinical examination shall be held in clinical techniques in Internal Medicine.
8. To be declared successful in Part-II examination the candidate must secure 60% marks in each component and 50% in each sub-component.
9. Only those candidates, who pass in theory papers, will be eligible to appear in the Oral & Practical/clinical Examination.
10. The candidates, who have passed written examination but failed in oral & practical/ clinical examination, will re-appear only in oral & practical/clinical examination.
11. 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.
12. To be eligible to appear in Part-II examination the candidate must submit;
  - i. 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 75% of the lectures, seminars, practical/clinical demonstrations;
- iii. a certificate of having passed the Part-I examination;
- iv. Examination fee as prescribed by the University.

### Part-III Examination

1. All candidates admitted in MD Psychiatry course shall appear in Part-III (clinical) examination at the end of structured training programme (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.
2. The examination shall be held on biannual basis.
3. To be eligible to appear in Part-III examination the candidate must submit;
  - i. 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 75% of the lectures, seminars, practical/clinical demonstrations;
  - iii. Original Log Book complete in all respect and duly signed by the Supervisor (for Oral & practical/clinical Examination);
  - iv. certificates of having passed the Part-I & part-II examinations;
  - v. Examination fee as prescribed by the University.
4. 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)
5. There shall be two written papers of 150 marks each.
6. Both papers shall have problem-based Short/Modified essay questions and MCQs.
7. Oral & practical/clinical examination shall have 300 marks for:
 

i. 1 Long Case	100
ii. 4 Short Cases	100(25 marks each)
iii. OSCE	100

8. To be declared successful in Part-III examination the candidate must secure 60% marks in each component and 50% in each sub-component.
9. Only those candidates, who pass in theory papers, will be eligible to appear in the Oral & Practical/ Clinical Examination.
10. The candidates, who have passed written examination but failed in Oral & Practical/ Clinical Examination, will re-appear only in Oral & Practical / Clinical examination.
11. 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.
12. The candidate with 80% or above marks shall be deemed to have passed with distinction.
13. *Log Book/Assignments:* Throughout the length of the course, the performance of the candidate shall be recorded on the Log Book.
14. The Supervisor shall certify every year that the Log Book is being maintained and signed regularly.
15. The Log Book will be developed & approved by the Advanced Studies & Research Board.
16. The evaluation will be maintained by the Supervisor (in consultation with the Co- Supervisor, if appointed).
17. The performance of the candidate shall be evaluated on annual basis, e.g., 40 marks for each year in five years MD Psychiatry 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.

### **3. Submission / Evaluation of Synopsis**

1. The candidates shall prepare their synopsis as per guidelines provided by the Advanced Studies & Research Board, available on UHS website.
2. The research topic in clinical subject should have 30% component related to basic sciences and 70% 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.
3. Synopsis of research project shall be submitted by the end of the 3<sup>rd</sup> 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.

### **4. Submission of Thesis**

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

### **5. Thesis Examination**

1. All candidates admitted in MD course shall appear in Part-III thesis examination at the end of 5<sup>th</sup> year of their training course.
2. Only those candidates shall be eligible for thesis evaluation who have passed Part I, II & III (clinical) Examinations.
3. The examination shall include thesis evaluation with defense.

4. 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.
5. The thesis shall be sent to the external examiners for evaluation, well in time before the date of defense examination and should be approved by all the examiners.
6. After the approval of thesis by the evaluators, the thesis defense examination shall be held 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.
7. 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.

#### ***6. Award of MD Psychiatry Degree***

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

## CONTENT OUTLINE

### Part I MD Psychiatry

## **BASIC SCIENCES CURRICULUM**

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

### **1. Anatomy**

- Detailed Anatomy of the organ systems of body, their blood supply, nerve supply, lymphatic drainage and important gross relations to other organs as appropriate for neurosurgical operations
- Developmental Anatomy and associated common congenital abnormalities
- Features of Surface, Imaging and Applied Anatomy within skull, brain, spinal cord, peripheral nervous system and head and neck
- Relate knowledge to assessment of clinical situation or progress of disease condition

#### **Embryogenesis of the brain and spinal cord**

- Embryogenesis of supporting structures - skull and vertebral column
- Common anatomical variations and developmental abnormalities
- Embryogenesis of the skeleton and muscle development

#### **Structure, blood supply, innervation, surface and three-dimensional relationships of the:**

- Scalp
- Skull
- Meninges
- Orbit
- Cranial fossae
- Cranial foraminae
- Cranial nerves

#### **Cortical Topography:**

- Projection and association tracts
- Organization of the basal ganglia
- Structure, organization and connections of the cerebellum, pons and brainstem
- Cranial nerves and their relationships
- Visual and auditory pathways
- Ventricular system and choroid plexus
- Subarachnoid space and cisterns
- Circle of Willis and principle regional and segmental blood supply
- Venous drainage and dural sinuses

**Structure, blood supply, innervation, surface and three-dimensional relationships of the:**

- Vertebral column
- Spinal cord: ascending and descending tracts
- Spinal nerve roots
- Cauda equina

**Structure, innervation and Distribution of autonomic and peripheral nervous system:**

- Sympathetic and parasympathetic pathways
- Visceral and pelvic innervation: control of sphincter function
- Brachial plexus
- Lumbosacral plexus
- Course, distribution and innervation of the major peripheral nerves

**Applied Anatomy**

- Stereotaxis
- Embryology and maldevelopment
- Differences between foetal, infant, child and adult brain
- Development of facial and cranial skeleton
- Branchial arches and the vascular system
- Development of the ventricular system
- Development of the cerebral hemispheres
- Development of brain stem and cranial nerves
- The notochord
- The subependymal plate (subventricular zone)
- Development of the pituitary gland
- The external granular layer of the cerebellum
- Spinal cord development
- Applied embryology of the CNS and its coverings

**Histology:**

- Structure-function relationships of neurons and neuroglia.
- Synapses
- Cortical organization
- Cross-sectional study of sections of the CNS at different levels
- The endocrine glands

## **2. physiology**

- Functional Neurophysiology: Cellular organization, structure function correlations and physiological alterations in the central and peripheral nervous systems of body
- Clinical Neurophysiology: Relate knowledge to assessment of clinical situation or progress of disease condition

**Functional Neurophysiology:**

- Structure and function of neurons and glial cells
- Synaptic function, action potentials and axonal conduction
- Higher cerebral functions

- Sleep and coma
- Memory and disorders of the limbic system
- Control of motor function: ascending and descending pathways, basal ganglia and cerebellar function
- The special senses
- Hypothalamic-pituitary function
- Cerebral blood flow and metabolism
- Cerebral autoregulation and vasospasm
- Blood brain barrier and cerebral odema
- Intracranial pressure dynamics
- Cerebral ischaemia and neuroprotection
- CSF hydrodynamics - production and absorption
- Principles of neuronal and synaptic transmission
- Major transmitter pathways
- Detailed knowledge of the synthesis, storage, release, uptake, and metabolism of brain neurotransmitters; catecholamines, indolamines, amino acids and neuropeptides
- Physiology of sleep
- Cerebral laterality and psychiatry
- Cerebral lateralization of function and the concept of hemispheric specialization
- Nervous regulation of muscle tone
- Reflex action in the nervous system
- Maintenance and control of posture
- Cerebellar functions
- Functional localization of the cerebral cortex
- The neurophysiology of:
  - Memory
  - Learning
  - Emotions
  - Motivation
  - The regulation of sleep and arousal
- Neuroendocrine mechanisms
- Regulation and function of the endocrine glands
- Neural pathways and structures involved in:
  - Pain
  - Motor function
  - Sexual and aggressive drives
  - Hunger and thirst
  - Fear and stress

#### **Autonomic Nervous System:**

- Differing effects of sympathetic and parasympathetic innervations
- Effects on differing physiological processes

#### **Clinical Neurophysiology:**

- Principles of electroencephalography
- Principles of somatosensory, motor and brainstem evoked potential monitoring
- Peripheral neuropathies and entrapment neuropathies including:
  - Structure and function of peripheral nerves

- Use of nerve conduction studies
- Disorders of the neuromuscular junction including:
  - Structure and function of smooth and striated muscle
  - Use of electro-myographic studies

### **Clinical Skills**

- Interpretation of the results of EEG, EMG and NC studies

## **3. Biochemistry**

- Membrane biochemistry and signal transduction
- Enzymes and biologic catalysis
- Tissue metabolism
- Carbohydrate metabolism
- Lipid metabolism
- Nitrogen metabolism

### **Neurochemistry (Including Neuroendocrinology)**

- Fundamentals of Chemistry
- Introduction to acid-base chemistry and equilibrium
- Fundamentals of Neurochemistry
- CNS metabolism
- Principle of neuronal communication
- Mechanism controlling transmitter release
- Transduction mechanisms in the post-synaptic cells
- Characteristics of synaptic potential
- Process of synaptic summation (spatial and temporal)
- Neurotransmitters & Synaptic Transmission
- Neurotransmitters and receptors
- Important neurotransmitters and chemical messengers

#### Chemical Classification

- Nitric Oxide
- Eicosanoids
- Acetylcholine
- Amino acid transmitters
- Serotonin
- Catecholamines
- Peptides

#### Functional Classification

- Metabolism
- Important second messenger pathways
- Pathophysiologic mechanism of conditions interfering chemical transmission
- Neuropeptides including enkephalins and endorphins
- Hormone synthesis, storage and release
- Neurochemistry of common neurological diseases (Alzheimer's disease, alcoholism, anxiety, sleep disorders etc.)
- Neuroendocrinology and Neurohormones
- Molecular bases of neuroendocrine regulation
- Neuroendocrinology of hypothalamus, pituitary gland, hypothalamic-pituitary-gonadal axis, sleep and arousal etc.)

- Homeostasis and biological rhythms
- Gene expression and the synthesis of proteins
- Bioenergetics; fuel oxidation and the generation of ATP
- Biotechnology and concepts of molecular biology with special emphasis on use of recombinant DNA techniques in medicine and the molecular biology of cancer

## 4. Pharmacology

- The Evolution of Medical Drugs
- British Pharmacopeia
- Introduction to Pharmacology
- Receptors
- Mechanisms of Drug Action
- Pharmacokinetics
- Pharmacokinetic Process
  - Absorption
  - Distribution
  - Metabolism
  - Desired Plasma Concentration
  - Volume of Distribution
  - Elimination
  - Elimination rate constant and half life
  - Creatinine Clearance
- Drug Effect
  - Beneficial Responses
  - Harmful Responses
  - Allergic Responses
- Drug Dependence, Addiction, Abuse and Tolerance
- Drug Interactions
- Dialysis
- Drug use in pregnancy and in children

### **Psychopharmacology:**

- Classification of psychoactive drugs
- Pharmacokinetics; absorption, distribution, metabolism and elimination
- Pharmacodynamics; receptors, up & down regulation, mode of action of different groups (antipsychotics, anti-cholinergics, mood altering and mood stabilizing agents, anxiolytics, hypnotics and anti-epileptics)
- Adverse drug reactions

## 5. Pathology

Pathological alterations at cellular and structural level in infection, inflammation, ischaemia, neoplasia and trauma affecting the nervous system.

### 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
- Immune response
- Diagnostic procedures in a clinical Immunology laboratory
- Protective immunity to microbial diseases
- Tumour immunology
- Immunological tolerance, autoimmunity and autoimmune diseases.
- Transplantation immunology
- Hypersensitivity
- Immunodeficiency disorders
- Immunoprophylaxis & Immunotherapy

### **Related Microbiology**

- Role of microbes in various central and peripheral nervous system diseases
- Infection source
- Nosocomial infections

- Pathogenic bacteria, vegetative organisms, spores, important viruses and parasites
- Sources of infection
- Asepsis and antisepsis
- Sterilization and disinfection
- Infection prevention
- Immunization
- Personnel protection from communicable diseases
- Use of investigation and procedures in laboratory

### **Psychopathology:**

- Symptomatology & classification principles
- Models of dynamic psychopathology (psychoanalytic, object relation, self-psychology, humanistic)
- Psychodynamics of specific psychiatric disorders:
  - Schizophrenia
  - Mood disorders
  - Anxiety disorders
  - Substance- related and eating disorders
  - Personality disorders
  - Other disorders: (e.g. dissociative disorders, psychosexual disorders)
- Psychodynamic assessment and formulation
- Aetiological Aspects
- Psychopathology of special age groups
  - Childhood & adolescence
  - Middle and old age
  - Psychopathology of religion and spirituality
- Cerebral hypoxia and ischaemia
- Cytopathology of neurons and glial in response to ischaemia, hypoxia and trauma
- Diffuse axonal injury
- Cerebral and spinal vascular disorders and lesions of extra-cranial vessels
- Brain and spinal cord trauma
- Acute and chronic inflammatory processes in the CNS
- Meningitis, encephalitis, brain abscess and other disorders of bacterial, viral, fungal or parasitic origin
- Principles and practice of antibiotic therapy
- Bacterial, Viral, fungal and parasitic meningitis, encephalitis and abscess formation
- HIV associated infections and leucoencehalopathies
- The dementias
- Causes of epilepsy
- Demyelinating diseases
- Diseases of the scalp, skull and meninges
- Diseases and degenerative disorders of the spine
- Inborn errors of metabolism
- Brain shifts, herniation and raised intracranial pressure
- Space-occupying lesions

## 6. Neuroradiology

- Principles of diagnostic and interventional Neuroradiography
- Nomenclature of Anatomy and Terms
- Plans & Positions
- Interpretation and Correlation with Disease in radiographic patterns of;
  - The skull
  - The spine
  - Foreign bodies
- Bed side radiography
- Soft-tissue radiography
- Principles of computerized tomography of the brain, skull and spine
- Interpretation of CT scans with particular reference to acute spinal disorders, cranial trauma, hydrocephalus, intracranial tumours and spontaneous intracranial haemorrhage
- Interpretation of MRI scans with particular reference to acute spinal disorders, cranial trauma, hydrocephalus and intracranial tumours
- Principles of advance magnetic resonance imaging including fMRI, DWI and spectroscopy
- Principles of basic magnetic resonance imaging
- Macro radiology
- Special investigations (procedures)
- Interpretation of angiographic images: CTA, MRA and DSA, Myelography
- Different types of contrast materials: Positive & Negative. Oils (Myelograms, sinouses); Liquids (arteriograms); Air or gases, pneumoarthrograms, pleural cavity, peritoneal cavity, ventriculogram, encephalograms).

## 7. Biostatistics & Research Methodology

1. Introduction to Bio-Statistics
2. Introduction to Bio- Medical Research
3. Why research is important?
4. 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
5. Ethics in Health Research
6. Writing a Scientific Paper
7. Making a Scientific Presentation
8. Searching the Literature

## 8. 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-maleficence 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 Psychiatry**

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 neuropsychiatry 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. Dermatology;**

*Common and / or Important Problems:*

- Cellulitis
- Cutaneous drug reactions
- Psoriasis and eczema
- Skin failure: e.g. erythroderma, toxic epidermal necrolysis
- Urticaria and angio-oedema
- Cutaneous vasculitis
- Herpes zoster and Herpes Simplex infections

- Skin tumours
- Skin infestations
- Dermatomyositis
- Scleroderma
- Lymphoedema

*Clinical Science:*

- Pharmacology of major drug classes: topical steroids, immunosuppressants

### **3. 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:*

- Hyper/Hypocalcaemia
- Adrenocortical insufficiency
- Hyper/Hyponatraemia
- Thyroid dysfunction
- Dyslipidaemia
- Endocrine emergencies: myxedemic coma, thyrotoxic crisis, Addisonian crisis, hypopituitary coma, pheochromocytoma 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

### **4. 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

## **5. 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

## **6. 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

## **7. 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
- Principles and limitations of allergen avoidance

### **8. 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

### **9. Immunology**

#### *Common or Important Problems:*

- Anaphylaxis (see also 'Allergy')

#### *Clinical Science:*

- Innate and adaptive immune responses
- Principles of Hypersensitivity and transplantation

### **10. 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

**11. Medicine in the Elderly***Common or Important Problems:*

- Deterioration in mobility
- Acute confusion
- Stroke and transient ischaemic attack
- Falls
- Age related pharmacology
- Hypothermia
- Continence problems
- 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

**12. 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, colchicine, allopurinol, bisphosphonates

**13. 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)

#### **14. Psychiatry**

*Common and /or Important Problems:*

- Suicide and parasuicide
- Acute psychosis
- 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)

#### **15. 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

#### **16. 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)

## **17. Clinical Pharmacology**

*Common and / or Important problems:*

- Corticosteroid treatment: short and long-term complications, bone protection, safe withdrawal of corticosteroids, patient counseling regarding avoid adrenal crises
- Specific treatment of poisoning with:
  - Aspirin,
  - Paracetamol
  - Tricyclic anti-depressants
  - Beta-blockers
  - Carbon monoxide
  - Opiates
    - Digoxin
    - Benzodiazepines

*Clinical Science:*

- 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 impairment

## **Investigation 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

- Lipid profile
- Amylase
- Drug levels: paracetamol, salicylate, digoxin, antibiotics, anti-convulsants
- Full blood count
- Coagulation screen
- Haemolysis screen
- D dimer
- Blood film report
- Haematinics
- Blood / Sputum / urine culture
- Fluid analysis: pleural, cerebro-spinal fluid, ascitic
- Urinalysis and urine microscopy
- Auto-antibodies
- H. Pylori testing
- Chest radiograph
- Abdominal radiograph
- Joint radiographs (knee, hip, hands, shoulder, elbow, dorsal spine, ankle)
- ECG
- Peak flow tests
- Full lung function tests

*More Advanced Competencies;*

- Urine catecholamines
- Sex hormones (FSH, LH, testosterone, oestrogen and progesterone) & Prolactin
- Specialist endocrine suppression or stimulation tests (dexamethasone suppression test; insulin tolerance test; water deprivation test, glucose tolerance test and growth hormone)
- Coeliac serology screening
- Viral hepatitis serology
- Myeloma screen
- Stool testing
- HIV testing
- Ultrasound
- Detailed imaging: Barium studies, CT, CT pulmonary angiography, high resolution CT, MRI
- Imaging in endocrinology (thyroid, pituitary, adrenal)
- Renal imaging: ultrasound, KUB, IVU, CT
- Echocardiogram
- 24 hour ECG monitoring
- Ambulatory blood pressure monitoring
- Exercise tolerance test
- Cardiac perfusion scintigraphy
- Tilt testing
- Neurophysiological studies: EMG, nerve conduction studies, visual and auditory evoked potentials
- Bone scan
- Bone densitometry
- Scintigraphy in endocrinology
- V/Q scanning

### **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
- Lumbar Puncture
- Pleural tap and aspiration
- Intercostal drain insertion: Seldinger technique
- Ascitic tap
- Abdominal paracentesis
- Central venous cannulation
- Initial airway protection: chin lift, Guedel airway, nasal airway, laryngeal mask
- Basic and, subsequently, advanced cardiorespiratory resuscitation
- Bronchoscopy
- Upper and lower GI endoscopy
- ERCP
- Liver biopsy
- Renal biopsy
- Bone marrow and lymph node biopsy
- Cytology: pleural fluid, ascitic fluid, cerebro-spinal fluid, sputum
- DC cardioversion
- Urethral catheterization
- Nasogastric tube placement and checking
- Electrocardiogram
- Knee aspiration
- Temporary cardiac pacing by internal wire or external pacemaker
- Skin Biopsy (this is not mandated for all trainees but opportunities to become competent in this technique should be available especially for trainees who subsequently wish to undertake specialist dermatology training)

# Part-III Specialty Training in Psychiatry

## SPECIFIC PROGRAM CONTENT

### 1. Developmental Behavioral and Social Psychology:

- Infancy through adolescence
  - Personality development (e.g., moral development)
- Developmental processes, tasks, crises, and transitions, (e.g., school entry, peer relations, individuation)
- Environmental influences
- Psychosocial (e.g., social deprivation)
- Adulthood
  - Personality adaptation
  - Developmental processes, tasks, crises, and transitions (e.g., employment, parenting)
  - Environmental influences
  - Psychosocial
- Acquisition and loss of specific capacities (e.g., menopause)
- Late life
  - Personality adaptation
  - Developmental processes, tasks, crises, and transitions
  - Environmental influences
  - Psychosocial
  - Acquisition and loss of specific capacities (e.g., cognition, physical endurance)
- Experimental and behavioral psychology
- Neuropsychology; cognitive psychology
- Social psychology
- Sociology
- Anthropology, culture, ethnicity, and race
- Ethology
- Psychoanalytic theory
- Spirituality

### 2. General Psychiatry:

- Psychiatric interviews and reports
- Symptomatology and clinical manifestations
- Detailed and comparative knowledge of the DSM and ICD classifications in their latest editions
- Genetics
  - Basic concepts and principles of inheritance
  - Family, twin, and adoption studies
  - Molecular genetics
  - Chromosomal abnormalities associated with psychiatric disorders
- Prenatal diagnosis
- The contribution of genetics to the aetiology of psychiatric disorders

- Brain imaging techniques, laboratory investigations and medical assessment
- Medical Ethics
- The dimensions of ethical situations
- Core ethical principles
- Professional ethical principles and responsibility
- Framework for ethical reasoning & decision making
- Doctor-Patient relationship including confidentiality, consent, restraint, and responsibility to others
- Ethical dilemmas in medicine
- Research ethics
- Presentation of psychiatric disorders in diverse cultural settings
- Future of Psychiatry
- Epidemiology and public policy
  - Mental illness prevention
  - Mental health systems (e.g. community psychiatry, military psychiatry, primary care)
  - Evidence based practice
  - Health care economics (e.g., cost, reimbursement)
  - Public policy issues (e.g., parity, stigma, gender)
  - Law and psychiatry
- Psychiatric interview and mental status examination
- Psychological and neuropsychological testing
- Diagnostic assessment and rating scales

### 3. Adult Psychiatry

Epidemiological features, aetiological (biological, psychological and social) and clinical features, investigations, management and prognosis of various psychiatric disorders:

- Organic mental disorders
- Schizophrenia
- Psychotic disorders
- Mood disorders
  - Depressive disorders
    - Major depressive disorder
    - Dysthymic disorder
    - Depressive disorder NOS
    - Bipolar disorders
      - Bipolar I disorder
      - Bipolar II disorder
      - Cyclothymic disorder
      - Bipolar disorder NOS
    - Mood disorder, due to a general medical condition
    - Substance induced mood disorder
  - Mood disorder NOS
- Anxiety disorders
  - Panic disorder, without agoraphobia
  - Panic disorder, with agoraphobia
  - Agoraphobia, without history of panic disorder
  - Specific phobia
  - Social phobia

- Obsessive compulsive disorder
- Posttraumatic stress disorder
- Acute stress disorder
- Generalized anxiety disorder
- Anxiety disorder, due to a general medical condition
- Substance induced anxiety disorder
- Anxiety disorder NOS
- Stress related disorders
- Somatoform disorders
  - Somatization disorder
  - Undifferentiated somatoform disorder
  - Conversion disorder
  - Pain disorder
  - Hypochondriasis
  - Body dysmorphic disorder
  - Somatoform disorder NOS
- Dissociative disorders
  - Dissociative amnesia
  - Dissociative fugue
  - Dissociative identity disorder
  - Depersonalization disorder
  - Dissociative disorder NOS
- Sexual dysfunctions and gender identity disorders
  - Sexual desire disorders
  - Sexual arousal disorders
  - Orgasmic disorders
  - Sexual pain disorders
  - Sexual dysfunction, due to a general medical condition
  - Paraphilias
  - Gender identity disorders
- Eating disorders
  - Anorexia nervosa
  - Bulimia nervosa
  - Obesity
  - Eating disorder NOS
- Sleep disorders
- Impulse control disorders
  - Intermittent explosive disorder
  - Kleptomania
  - Pyromania
  - Trichotillomania
  - Pathological gambling
  - Impulse control disorder NOS
- Adjustment disorders and relational problems
- Psychosomatic disorders
- Personality disorders
  - Paranoid personality disorder
  - Schizoid personality disorder
  - Schizotypal personality disorder
  - Borderline personality disorder

- Histrionic personality disorder
- Narcissistic personality disorder
- Avoidant personality disorder
- Dependent personality disorder
- Obsessive compulsive personality disorder
- Antisocial personality disorder
- Other conditions that may be a focus of clinical attention (e.g., grief)
- Factitious disorders and malingering
- Recent advances in the psychopharmacology of Antipsychotics, Antidepressants, Mood stabilizers, Antianxiety, Anticholinergic, and Anticonvulsant medications including
  - Pharmacokinetics
  - Pharmacodynamics
  - Drug interactions
  - Adverse effects
- Recent developments in the use of ECT and other physical methods of treatment of psychiatric disorder
- Psychological and social methods of managing psychiatric disorders
- Prevention of psychiatric disorders
- Assessment and Rehabilitation in chronic psychotic disorders
- Psychiatry and Medicine
- Medical disorders presenting with psychiatric symptoms
- Psychiatric disorders presenting with medical disorders
  - Suicide and attempted
  - Psychosomatic medicine
  - Pain and its management
- Emergency Psychiatry
  - Suicide and attempted suicide
  - Violence

#### **4. Child and Adolescent Psychiatry**

- Classification of childhood and adolescent psychiatric disorders
- Assessment of psychiatric disorders in childhood and adolescence through a developmental approach and through a conjoint family approach
- The epidemiology of psychiatric disorders in children and adolescents
- General aetiological factors of psychiatric disorders in children and adolescents:
  - Broad social influences
  - Family relationships
  - Loss, abuse and physical illness
- Biological influences including genetics
- Clinical presentation, aetiological factors, management and outcome of main psychiatric disorders encountered:
  - Specific developmental disorders (scholastic, motor and language)
  - Pervasive developmental disorders
  - Disruptive disorders: ADHD, Oppositional disorder & Conduct disorder in childhood and adolescence
  - Mental retardation
  - Learning disorders

- Communication disorders
- Attention deficit and disruptive behavior disorders
- Feeding and eating disorders of infancy or early childhood
- Elimination disorders
- Phobias in childhood
  - Anxiety disorders in childhood
  - Mood disorders in children and adolescence
  - Suicide and suicidal behavior in young persons
  - Elective mutism
  - Attachment disorders
  - School refusal
  - Under-achievement and deterioration in school performance
  - Enuresis and encopresis
  - Feeding disorders and pica
  - Tic and stereotyped movement disorders
  - Substance misuse in adolescence
  - Psychotic disorders in childhood and adolescence
- Risk assessment of young persons (self harming behavior, drug abuse and violent or threatening behavior)
- Child abuse (physical, emotional, sexual and negligence)
- Co morbidity in child psychiatry
- Interaction between psychiatric and physical disorders
- organically based psychiatric disorders and psychiatric aspects of chronic illnesses
- Use of psychoactive medications in childhood and adolescence (indications, adverse effects, pharmacokinetics, pharmacodynamics and drug –drug interactions)
- Treatment approaches in children and adolescents; family therapy, play, day-care, hospital care, and behavioural methods
- Continuity of childhood psychiatric disorders into adult life

## 5. Mental Retardation

- Brain development and neuronal plasticity
- The interaction between genetic and environmental factors in the aetiology of mental retardation
- Definitions and assessment; clinical and psychometric
- Classification of mental retardation according to the WHO-ICD and American-DSM systems
- Genetic, intrauterine, perinatal, and postnatal causes of mental retardation
- Prevalence of the various forms of mental retardation and associated psychiatric morbidity
- Clinical presentation, diagnostic assessment, and prevention of the common forms of mental retardation:
  - Chromosomal abnormalities including Down syndrome and Fragile X syndrome
  - Genetic disorders including inborn errors of metabolism
  - Toxic and metabolic causes including foetal alcohol syndrome
  - Nutritional forms including prematurity

- Clinical characteristics, diagnosis and treatment of psychiatric disorders associated with mental retardation
- Behavioural problems associated with mental retardation; their aetiology and management
- The effects of mental retardation on the individual and the family
- Criminal responsibility and mental retardation, issues of guardianship
- Service provision and development for mental retardation

## **6. Psychiatry of the Elderly (Geriatric Psychiatry)**

- Cognitive, emotional, and personality changes associated with ageing
- Family attitudes, status issues, economic changes with ageing, abuse and neglect
- Epidemiology of psychiatric disorders in the elderly
- Clinical evaluation of the elderly patient
- Investigative methods for elderly patients with neuropsychiatric disorders
- Psychological aspects of medical and neurological illness in the elderly
- Aetiology, clinical presentation, diagnosis, investigations, management and prognosis of:
  - Delirium
  - Dementias including reversible forms of dementia
  - Affective disorders
  - Late paranoid disorders
  - Anxiety states
  - Personality changes
  - Bereavement and adjustment disorders
  - Sleep disorders
  - Sexual problems
- The use of psychopharmacology in old age; pharmacokinetics, drug interactions, dosage, and side effects
- The use of psychotherapy in elderly patients
- The clinical assessment of cognitive impairment

## **7. Neurological Disorders/ Syndromes**

- Infections of the nervous system
- Vascular diseases
- Disorders of cerebrospinal and brain fluids
- Neuro-oncology
- Trauma
- Birth injuries and developmental abnormalities
- Genetic diseases of recognized biochemical abnormality
- Cerebral degenerations of childhood
- Cranial nerve disorders
- Peripheral neuropathies
- Ataxias
- Headache
- Movement disorders
- Spinal cord diseases
- Neuromuscular junction disorders
- Myopathy
- Demyelinating diseases

- Epilepsy and episodic disorders
- Neurological complications of systemic diseases
- Neurotoxicology
- Pain syndromes

## **8. Neuropsychiatric Disorders:**

- Delirium, dementia, and amnestic and other cognitive disorders
  - Delirium, due to a general medical condition
  - Substance intoxication delirium
  - Substance withdrawal delirium
  - Delirium, due to multiple etiologies
  - Delirium NOS
- Dementia
  - Dementia of the Alzheimer type, with early onset
  - Dementia of the Alzheimer type, with late onset
  - Vascular dementia
  - Dementia, due to HIV disease
  - Dementia, due to head trauma
  - Dementia, due to Parkinson disease
  - Dementia, due to Huntington disease
  - Dementia, due to Pick disease
  - Dementia, due to spongiform encephalopathy
  - Dementia, due to general medical condition
  - Substance induced persisting dementia
  - Dementia, due to multiple etiologies
  - Dementia NOS
- Amnestic disorder
  - Amnestic disorder, due to a general medical condition
  - Substance-induced persisting amnestic disorder
  - Amnestic disorder NOS
- Other cognitive disorders
  - Sleep disorders
  - Primary sleep disorders
  - Dyssomnias
  - Parasomnias
  - Sleep disorders related to another mental disorder

## **9. Forensic Psychiatry**

- The relationship between crime and mental disorders
- Fitness to plead
- Criminal responsibility (not guilty by reason of insanity)
- Diminished responsibility
- Court evidence and report
- The forensic psychiatric service
- Prison psychiatry
- Assessment of dangerousness

- Testamentary capacity
- 
- Civil law as it relates to marriage, divorce, custody of children, and management of property
- Issues of compensation and psycho social aspects of disability claims
- Administrative and legal aspects of compulsory detention and treatment due to mental disorder or disability

## **10. Mental Disorders, Due to a General Medical Condition:**

- Shared psychotic disorder
- Psychotic disorders NOS

### **Substance Abuse**

- The pharmacology of common substances of abuse
  - Alcohol related disorders
  - Amphetamine related disorders
  - Caffeine related disorders
  - Cannabis related disorders
  - Cocaine related disorders
  - Hallucinogen related disorders
  - Inhalant related disorders
  - Nicotine related disorders
  - Opioid related disorders
  - Phencyclidine related disorders
  - Sedative, hypnotic, or anxiolytic related disorders
  - Organic solvents related disorders
  - Poly substance related disorders
- History of substance abuse, the medical and legal approaches to conceptualizing substance abuse
- The epidemiology of substance abuse in the community
- Biological, psychological, and social theories of aetiology of substance abuse
- Abuse, misuse, and dependence; definitions and assessment
- The clinical presentation, investigation, and management of the medical, neurological, and psychiatric complications of the various substances of abuse notably:
  - Intoxication and withdrawal syndromes
  - Hallucinatory states
  - Delusional disorders
  - Other psychotic disorders
  - Mood disorders
  - Personality changes
  - Dementia and amnesic disorders
  - Anxiety states
- Regulations governing the prescription of controlled and other psychoactive drugs
- Interactions between substance abuse and other psychiatric disorders;
- effects on diagnosis and management
- The impact of substance abuse on the family and the society

- The management of substance abuse, including biological management of psychiatric complications, biological, psychological and social methods of relapse prevention and rehabilitation
- The components and principles of operation of a substance abuse service
- Community services supporting the prevention, and management of substance abuse

### **Schizophrenia and Other Psychotic Disorders**

- Schizophrenia
- Schizophreniform disorder
- Schizoaffective disorder
- Delusional disorder

### **11. Special Topics:**

- Suicidality
- Dangerousness
- Seclusion/restraint
- Risk management
- Child abuse, sexual abuse, and domestic violence
- Psychiatric consultation
- Professionalism/ethics

### **12. Psychotherapy**

- Dynamic psychotherapy:
  - The classical psychoanalytic concepts of transference and counter-transference, resistance, psychic organization, and the use of mental defense mechanisms
  - Object-relation theories and principles of therapy according to Klein, Fairbairn and Guntrip
  - Brief dynamic psychotherapy
  - Crisis intervention
- Group psychotherapy:
  - The concepts of Object-Relation theory,
  - Transactional Analysis, and Gestalt Therapy as applied to group therapy
  - The organization and conduct of small group therapy
  - Therapeutic factors, limitations, uses, indications, and outcome in group psychotherapy
- The Client Centered approach to psychotherapy (Carl Rogers)
- The Cognitive approach to psychotherapy
  - Biofeedback
  - Psychotherapy
  - Supportive
  - Cognitive
  - Interpersonal
  - Psychodynamic
  - Behavioural therapies:
    - Assessment and follow-up measures
    - Relaxation techniques
    - Systemic desensitization

- Flooding
- Operant conditioning methods
- Social skills training
  
- Psychoanalytics
  - Couples
  - Family
  - Group
- Crisis intervention
- Sex therapy
- Other (e.g., hypnotherapy, critical incident debriefing, phototherapy, chronotherapy (sleep deprivation))
- Pain management (pharmacologic/non-pharmacologic)
- Studies on the effectiveness of psychotherapy including therapist characteristics

### **13. Psychopharmacology**

- General principles
- Pharmacokinetics/pharmacodynamics
- Drug interactions
- Age, gender, and ethnicity issues
- Psychogenomics
- Specific pharmacologic agents
  - Antidepressants
  - Tricyclics and heterocyclics
  - Monoamine oxidase inhibitors
  - Selective serotonin reuptake inhibitors (SSRI)
  - Selective norepinephrine reuptake inhibitors (NRI)
  
  - Selective serotonin-norepinephrine reuptake inhibitors (SNRI)
  
  - Combined noradrenergic-dopaminergic agents (NDRI)
  
  - Noradrenergic and specific serotonergic agents (NaSSA)
- Augmentation strategies
- Mood stabilizers
  - Lithium
  - Anticonvulsants
- Antianxiety agents
  - Benzodiazepines
  - Antidepressants
  - Beta adrenoreceptor blockers
- Antipsychotics
  - Typical
  - Atypical (second generation)

- Psychostimulants
- Hypnotics and sedatives
- Pharmacotherapy of chemical dependence and abuse
  - Alcohol
  - Opioids
  - Nicotine
  - Sedative–hypnotics
- Anti-aggression agents
- Pharmacotherapy in special situations
  - Renal disease
  - Pregnancy
  - Breast feeding

#### **14. Interventional Psychotherapy:**

Cognitive, psychosocial/rehabilitative and surgical interventions

##### **Neurosurgical Procedures:**

- Pain management
- Neurosurgical approaches
- Vagal nerve stimulation
- Repetitive transcranial magnetic stimulation (rTMS)

##### **Psychosocial Interventions:**

- Psychoeducation
- Genetic counseling
- Ethical and legal issues/considerations

##### **Rehabilitation (e.g., vocational):**

- Relapse prevention
- Self-help groups  
(e.g., Alcoholics Anonymous, Narcotics Anonymous)
- Community based treatment programs  
(e.g., halfway houses, day hospitals)
- Patient empowerment
- Harm reduction
- Motivational interviewing
- Contingency management

### **Part-III Specialty Clinical Rotations**

During the third, fourth and final year, the Psychiatry resident shall rotate in the following clinical services. This is accomplished through the supervised performance of consultations, daily hospital rounds and active participation in procedures under the supervision of attending faculty. Clinical decision making and a cost-effective scholarly approach to Psychiatry problems are emphasized through teaching rounds, clinical rounds and clinical conferences. The specialty training with acquisition of clinical as well as procedural skills is as follows:

1. **Neurology**: two full-time equivalent months of supervised clinical experience in the diagnosis and treatment of patients with neurological disorders/conditions. At least one month should occur in the first or second year of the program. The aim of the posting is to make the resident competent:
  - To provide instruction to psychiatry residents which allows them responsibility and experience in caring for patients with neurological problems. This exposure to neurological patients allows the development of clinical judgment, interpreting laboratory and other diagnostic studies for neurologic problems, and in the rational management of patients with neurological disease.
  - To demonstrate the knowledge of clinical physiology and pathology of neurological condition. This includes the natural history, prevalence, manifestation, differential, diagnosis, rational therapy and management of neurological conditions, and the emphasis on preventative and rehabilitative features of neurological conditions.
  - To enhance the patient management skills of the psychiatry residents for neurological patients by teaching appropriate history taking, physical examination, and diagnostic procedures for neurological conditions. Included will be problem identification and formulation, problem-solving skills, medical-decision making and appropriate patient-physician and patient-family relationships.

**Skills:**

- The ability to perform a thorough neurological examination including assessment of soft neurological signs.
- Skills used to diagnose and manage neurological conditions, included would be a lumbar puncture with appropriate cytological evaluations, brain scans, EEGs, skull x-rays, and visual fields.
- Common neurological disorders encountered in general practice:
  - Bell's palsy
  - Cerebral embolism
  - Cerebral thrombosis and hemorrhage
  - Acute drug intoxications
  - Headaches
  - Diabetic and Nutritional neuropathies
  - Parkinson's disease
  - Epilepsy
  - Infections of the central nervous system including meningitis, encephalitis.
  - Expanding intracranial lesions
  - Neuro-behavioural disorders
  - Evaluation of the comatose patient
  - Treatment approaches including recent advances.

2. **Inpatient Psychiatry**: six but no more than 16 months full-time equivalent of inpatient psychiatry of which there must be a minimum of six months of significant responsibility for the assessment, diagnosis, and treatment of general psychiatric patients who are admitted to traditional psychiatry units, day hospital programs, research units, residential treatment programs, and other settings that meet the following criteria:

- The patient population is acutely ill and represents a diverse clinical spectrum of diagnoses, ages, and gender
- Patient services are comprehensive and continuous and allied medical and ancillary staff are available for backup support at all times.

*The resident will be able to:*

- Obtain information from the patient interview, family contact, old charts, outpatient providers to complete a thorough assessment
- Complete a comprehensive mental status examination
- Assess for dangerousness to self and/or others
  
- Use precautions appropriately including close observation, suicide precautions, and one to one
- Understand and appropriately apply criteria for inpatient hospitalization
- Determine if a patient is medically stable enough for psychiatric hospitalization
- Formulate a basic treatment plan including the following:
  - Acute stabilization
  - Medication management
  - Psychosocial interventions
  - Group and individual therapy
  - Psycho-education
  - Ancillary therapies
  - Discharge planning
- Demonstrate a basic understanding of individual, group and family treatment as it relates to inpatient psychiatry
- Document the full history, mental status examination, hospital course, basic differential diagnosis, basic diagnostic formulation and basic treatment plan in the discharge summary
- Provide appropriate documentation on patients seen in the ER (if applicable) including a complete HPI, MSE, and clinical rationale for triage decisions and treatment recommendations
- Legal Knowledge:
- Make a reasonable differential diagnosis based on a basic understanding of DSM-IV criteria to include all 5 axes
- Co-lead community and team meetings on the unit

**3. Outpatient Psychiatry:** 12 month full-time equivalent organized, continuous, and supervised clinical experience in the assessment, diagnosis, and treatment of outpatients with a wide variety of disorders and treatment modalities, with experience in both brief and long-term care of patients. Each resident must have significant experience treating outpatients longitudinally for at least one year. The aim of the clinical postings in OPD is acquisition of clinical skills:

- Comprehensive history taking and physical examination.
- Working knowledge of major psychiatric diagnoses and the ability to present a reasoned differential diagnosis.
- Psychiatric formulation
- Ability to develop a comprehensive treatment plan.

- Knowledge of psychopharmacological agents, including indications and significant adverse effects.
- ECT administration
- Understanding of and basic competence in identifying psychiatric emergencies and their management.
- Ability to write clear and thorough histories, consultation notes and follow-up notes.
- Demonstrate appropriate professional demeanor and ethics including respect for patient's confidentiality.

### **Psychotherapy Combined With Psychopharmacology**

- The resident will demonstrate knowledge of the diagnoses and clinical conditions which warrant consideration of psychopharmacological treatment in addition to psychotherapy, and psychotherapy in addition to psychopharmacology.
- The resident will demonstrate knowledge of different methods of combining psychotherapy and psychopharmacology.
- The resident will demonstrate knowledge of the specific indications for a recommendation for psychotherapy and psychopharmacology and the rationale for the type of psychotherapy and medication recommended.
- The resident will demonstrate knowledge of potential synergies and/ or antagonisms in combining psychotherapy and psychopharmacology.
- The resident will demonstrate knowledge that taking medication may have multiple psychological and socio-cultural meaning to a patient.
- The resident will demonstrate knowledge of the background, education and training of other mental health professionals who may provide psychotherapy in a combined treatment.
- The resident will demonstrate understanding that continued education in combined psychotherapy and psychopharmacology is necessary for further skill development.

### **Skills:**

- The resident will be able to gather sufficient clinical information to assess the need for, recommend and implement combined (sequential or simultaneous) psychotherapy and psychopharmacology.
- The resident will be able to form an active alliance with the patient which facilitates adherence to combined psychotherapy and psychopharmacology.
- The resident will be able to monitor the patient's condition and modify the psychotherapeutic or psychopharmacologic approach when necessary.
- The resident will be able to appreciate and assess the importance of timing of psychotherapeutic and psychopharmacologic interventions.
- The resident will be able to understand the influences of other factors on combined psychotherapy and psychopharmacology such as conscious and unconscious aspects of the doctor-patient relationship, placebo effects, and concurrent medical conditions.
- The resident will be able to recognize and identify affects in the patient and himself/ herself.
- The resident will be able to use psychotherapeutic techniques to diminish resistance to and facilitate use of medication when appropriate.

- The resident will be able to recognize the potential beneficial and/ or detrimental effects of medication use in a psychotherapeutic treatment.
- The resident will be able to understand and explore the psychological and sociocultural meaning to a patient of taking medication.
- The resident will be able to collaborate effectively with non-psychiatric psychotherapists and respond to conflicts and problems in the three-person treatment.

### **Supportive Therapy Competencies**

- The resident will demonstrate knowledge that the principal objectives of supportive therapy are to maintain or improve the patient's self-esteem,
- Minimize or prevent recurrence of symptoms, and to maximize the patient's adaptive capacities.
- The resident will demonstrate understanding that the practice of supportive therapy is commonly utilized in many therapeutic encounters.
- The resident will demonstrate knowledge that the patient-therapist relationship is of paramount importance.
- The resident will demonstrate knowledge of indications and contraindications for supportive therapy.
- The resident will demonstrate understanding that continued education in supportive therapy is necessary for further skill development.

### **Skills:**

- The resident will be able to establish and maintain a therapeutic alliance.
- The resident will be able to establish treatment goals.
- The resident will be able to interact in a direct and non-threatening manner
- The resident will be able to be responsive to the patient and give feedback and advice when appropriate.
- The resident will be able to demonstrate the ability to understand the patient as a unique individual within his/ her family, sociocultural and community structure.
- The resident will be able to determine which interventions are in the best interest of the patient and exercise caution about basing interventions on his/ her own beliefs and values.
- The resident will be able to recognize and identify affects in the patient and himself/ herself.
- The resident will be able to confront in a collaborative manner behaviors that are dangerous or damaging to the patient.
- The resident will be able to provide reassurance to reduce symptoms, improve morale and adaptation and prevent relapse.
- The resident will be able to support, promote, and recognize the patient's ability to achieve goals that will promote his/her well-being.
- The resident will be able to provide strategies to manage problems with affect regulation, thought disorders, and impaired reality testing.

- The resident will be able to provide education and advice about the patient's psychiatric condition, treatment and adaptation while being sensitive to specific community systems of care and socio-cultural issues.
- The resident will be able to demonstrate that in the care of patients with chronic disorders attention.
- The resident will be able to assist the patient in developing skills for self-assessment.
- The resident will be able to seek appropriate consultation and/ or referral for specialized treatment.

### **Cognitive Behavioral Therapy Competencies**

- The resident will demonstrate understanding to the basic principles of the cognitive model including the relationship of thoughts to emotion, behavior and physiology; the concept of automatic thoughts and cognitive distortions; the common cognitive errors; the significance and origin of core beliefs and relationship of schemas to dysfunctional thoughts and assumptions, behavioral strategies and psychopathology.
- The resident will demonstrate understanding of the cognitive formulations for the psychiatric conditions for which cognitive therapy is indicated.
- The resident will demonstrate understanding of the indications and contraindications for cognitive therapy.
- The resident will demonstrate understanding of the basic rationale for structuring a cognitive therapy session, and the focus on active collaborations and problem solving.
- The resident will demonstrate understanding of the basic principles of psychoeducation and skills training during therapy, and when termination approaches, for relapse prevention.
- The resident will demonstrate understanding of the basic principles underlying the use of behavioral techniques including activity scheduling, exposure and response prevention, relaxation training, graded task assignment, exposure hierarchies/ systematic desensitization.
- The resident will demonstrate understanding of the basic principles underlying the use of cognitive techniques including identifying automatic thoughts, cognitive restructuring, problem solving, advantage/ disadvantages analyses, examining the evidence, thought recording, and modification of core beliefs.
- The resident will demonstrate understanding of the ways in which rating scales are an integral part of cognitive behavioral therapy.
- The resident will demonstrate understanding that continued education is cognitive behavioral therapy is necessary for further skill development.

### **Skills:**

- The resident will be able to elicit data and conceptualize patients using the cognitive conceptualization framework.
- The resident will be able to establish and maintain a therapeutic alliance.
- The resident will be able to educate the patient about the cognitive model including the centrality of core beliefs/ schemas, and the responsibilities of the patient in actively engaging in treatment.
- The resident will be able to educate the patient about the core beliefs/ schemas most relevant to the presenting problem, and help him/ her understand the basic origin of these beliefs.

- The resident will be able to structure and focus the therapy sessions including collaboratively setting the agenda, bridging from the previous session, reviewing homework and assigning appropriate new homework, working on key problems, summarizing and closing the session, and eliciting and responding to feedback.
- The resident will be able to utilize activity scheduling and graded task assignment to teach the patient to monitor behavior and increase patient engagement in desirable mastery and pleasure behaviors.
- The resident will be able to utilize relaxation techniques, exposure and response prevention, and graded exposure to feared situations.
- The resident will be able to employ the dysfunctional thought record and measure the impact this has on mood on behavior.
- The resident will be able to recognize and identify affects in the patient and himself/ herself.
  
- The resident will be able to effectively plan termination with patients, employing booster sessions as indicated, and teaching relapse prevention techniques.
- The resident will be able to write a cognitive behavioral formulation.
- The resident will seek appropriate consultation and/ or referral for specialized treatment.

### **Psychodynamic Psychotherapy Competencies**

- The resident will demonstrate understanding of the spectrum of theoretical models of psychodynamic psychotherapy.
- The resident will demonstrate understanding of the clinical psychodynamic psychotherapy concepts of the unconscious, defense and resistance, transference and counter transference.
- The resident will demonstrate understanding that symptoms, behaviors, motivations often have multiple and complex meanings that may not be readily apparent.
- The resident will demonstrate understanding of the influence of development through the life cycle on thoughts, feelings, and behavior.
- The resident will demonstrate understanding of the indications and contraindications for the psychiatric disorders and problems treated by psychodynamic psychotherapy.
- The resident will demonstrate understanding that continued education in psychodynamic psychotherapy is necessary for further skill development.

### **Skills:**

- The resident will be able to evaluate the capacity of the patient to engage in and utilize psychodynamic psychotherapy.
- The resident will be able to display effective interpersonal skills in building and maintaining a collaborative therapeutic alliance that promotes self-reflection and inquiry into the patient's inner life.
- The resident will be able to establish with the patient treatment goals.
- The resident will be able to establish with the patient a treatment frame.
- The resident will be able to engage the patient in exploring his/ her history of experiences, socio-cultural influences, relationship patterns, coping mechanisms, fears, traumas and losses, hopes and wishes in order to understand the presenting problems.

- The resident will be able to effectively listen to the patient to understand nuance, meanings and indirect communications.
- The resident will be able to recognize and identify affects in the patient and himself/ herself.
- Recognize, utilize and manage aspects of transference and counter transference, defense and resistance in the course of treatment.
- The resident will be able to utilize self-reflection to learn about his/ her own responses to patients to further the goals of the treatment.
- The resident will be able to utilize clarification and confrontation.
- The resident will be able to utilize interpretation to manage transference/ counter transference that impedes or disrupts the therapeutic process.
- The resident will be able to manage and understand the meanings of termination.
- The resident will be able to write a psychodynamic formulation.
  
- The resident will be able to seek appropriate consultation and/ or referral for specialized treatment.

**4. Child and Adolescent Psychiatry:** During the posting in Psychiatry OPD and Psychiatry Ward the resident shall attend the paediatric psychiatry clinics with two months full-time equivalent organized clinical experience in which the residents shall be:

- Supervised by child and adolescent psychiatrists
- Provided opportunities to assess development and to evaluate and treat a variety of diagnoses in male and female children and adolescents and their families, using a variety of interventional modalities.

The objectives of this rotation are an understanding of:

- Normative child development
- Interview in children
- Classification, epidemiology, etiology and presentation of child and adolescent psychiatric disorders.
- Be familiar with the various diagnostic conditions seen during childhood and adolescence including Attention Deficit Hyperactivity Disorder, Conduct Disorder, Anxiety Disorders, Optional Deficit Disorder, Autism, Spectrum Disorders, Objective Disorders, Obsessive-Compulsive Disorders, Substance Abuse Disorders and Learning Disabilities.
- Understand the difference in symptomatology between children, adolescent and adults.
- Master techniques and strategies for diagnostic assessment of preschool, school age and adolescent patients
- Mental retardation etiology, manifestation, assessment, management and prevention.
- Specific learning disabilities
- Understand the importance and impact of family dynamics among children and adolescence
- Understand the importance and impact of school experiences and peer relationships
- Conduct, emotional and behavioural problems in children.
- Be familiar with techniques and applications of play therapy

- Gain experience with behavior modification techniques, parent management techniques, brief therapy and longer term psychodynamic therapy
- Understand the use of anti-psychotics and mood stabilizers in Psychopharmacology in children
- Psychosocial management issues with children.
- Adult outcome of child psychiatric disorders.
- Liaison with teachers, schools, child care institutions.

5. **Geriatric Psychiatry**: one month full-time equivalent organized experience focused on the specific competencies in areas that are unique to the care of the elderly. The resident will be able to:

- Perform appropriate testing & work-up of newly elderly admitted patient
- Make a broad differential diagnosis of psychiatric disorders including medical Causes
- Use collateral information appropriately to get a thorough history
- Use appropriately neuro-imaging and EEG in the differential diagnosis of psychiatric illness in the elderly
- Management (including management of the cognitive component) of the degenerative disorders, an understanding of neuropsychological testing as it relates to cognitive functioning in the elderly
- Distinguish between dementia and delirium
- Make a differential diagnosis of delirium and dementia including iatrogenic causes
- Evaluate the patient's decisional capacity.
- Be familiar with neuropsychological testing used to assess geriatric patients
- Be knowledgeable about the interaction of medical and psychiatric illness
- Be aware of indications and benefits and risks of anticholinesterase inhibitors
- Be aware of indications and benefits and risks of typical and atypical antipsychotics, anxiolytics, mood stabilizers, and antidepressants in the treatment of behavioral complications of dementia
- Have an awareness of anticholinergic side effects of psychotropics and other medications
- Manage a complex regimen of medications including knowledge of potential drug interactions
- Use age appropriate dosing strategies and be aware of pharmacokinetic and pharmacodynamic differences in the elderly
- Have knowledge of the indications and special considerations for ECT in the elderly

6. **Addiction Psychiatry**: one month full-time equivalent organized experience focused on the evaluation and clinical management of patients with substance abuse/dependence problems, including dual diagnosis. The aims of posting of a postgraduate resident is to impart him clinical skills in various kinds of drug dependence. The specific skills expected are comprehensive history taking and physical examination, knowledge of major drug alcohol and drug dependence, follow up to develop comprehensive treatment modalities including detoxification, management of overdose, maintenance pharmacotherapy, the use of psychological and social consequences of addiction in confronting and

intervening in chronic addiction rehabilitation used in recovery stages from pre-contemplation to maintenance, and the use of self-help groups.

The resident will be able to:

- Demonstrate the ability to conduct a thorough interview with substance abusing patients that will detail drug using histories, prior treatment, patient motivation for treatment and co-morbidity.
- Be familiar with and competent in matching patients with addictive disorders to proper levels of treatment utilizing objective recommendations
- Observe and be involved with the stages of recovery with addicted patients from emergency care, withdrawal from various drugs (including, heroin, cocaine and alcohol) stabilization and early recovery.
- Use treatment methods focusing on patient denial such as motivational

interviewing and supportive confrontation to convert involuntary patients into voluntary patients involved in their own care.

- Appreciate the complexity of the chronic illness model of treatment in attending to their addicted patients on this rotation.
- Assist addicted patients in moving through the different levels of treatment in this system.
- Be familiar with the recovery environments and the roles played by families and collaterals in the treatment process.
- Gain experience treating patients with co-morbid disorders both psychotherapeutically and pharmacologically.
- Gain experience being a primary therapist, co-therapist and family or couples therapist with addicted patients.
- Be familiar with and apply several informational and diagnostic tools in diagnosing addictive disorders such as: CAGE, Alcohol Use Disorders Identification Test (AUDIT), Drug Abuse Screening Test (DAST), Short version of Michigan Alcoholism Screening Test (SMAST), Addiction Severity Index (ASI), Substance Abuse Subtle Screening Inventory (SASSI).
- Be familiar with their own attitudes towards substance abusing patients and learn be able to differentiate between recovering versus practicing addicts and alcoholics.
- Learn about the several models of addictive disorders and intervention strategies for highly resistant patients.
- Know in detail all aspects of the criteria for substance-related disorders, substance induced disorders and remission stages.
- Experience treating patients for opiate agonist treatment and understand the complexities of Methadone, LAAM, Buprenorphine and its' varieties.
- Learn the judicious use of specified detoxification regimens both for alcohol and heroin. This includes detoxification for opiates using Buprenorphine.
- Use antagonist medication (Naltrexone) used in the treatment of heroin dependence and its judicious application.
- Gain experience with psychopharmacological adjunctive agents for the treatment of alcoholism including Naltrexone, Disulfiram, and the potential for GABA/Glutamate modulators.

**7. Consultation/Liaison:** Two month full-time equivalent in which residents consult under supervision on other medical and surgical services.

The resident will be able to:

- Gather data from appropriate sources, including chart, hospital staff, family, and other relevant individuals
- Adapt their interview style in medically ill patients in a variety of settings (i.e. adapt to patients on ventilators, recognize stress and fatigue in patients, prioritize questions and do multiple, brief interviews)
- Formulate a good HPI including psychiatric symptoms and recent stressors precipitating hospitalization as well as acute medical issues and their relationship to psychiatric symptoms
- Formulate a complete psychiatric work-up including history of present illness, past medical history, past psychiatric history, substance abuse history, family history, social history, developmental history and mental status examination
  
- Do a comprehensive assessment of cognitive capacity in medically ill patients using MMSE and HIV Dementia Scales
- Evaluate for psychopathologic processes in patients with concomitant medical and surgical conditions
- Assess for suicidality and dangerousness and evaluate risk factors and need for sitter/hospitalization
- Assess for homicidality and dangerousness and evaluate risk factors and need for sitter/hospitalization
- Evaluate for competency in medically ill patients
- Monitor the patient's course during hospitalization and provide continuing input as needed
- Manage time including length of notes appropriately with increased number of consults
- Do complete and adequate documentation addressing medico-legal risks
- Know about the biopsychosocial management of personality disorders in medical settings

**8. Forensic Psychiatry:** This experience must expose residents to the evaluation of forensic issues such as patients facing criminal charges, establishing competency to stand trial, criminal responsibility, commitment, and an assessment of their potential to harm themselves or others. This experience should include writing a forensic report. Where feasible, giving testimony in court is highly desirable.

**9. Emergency Psychiatry:** This experience must be conducted in an organized, 24-hour psychiatric emergency service, a portion of which may occur in ambulatory urgent-care settings, but not as part of the 12-month outpatient requirement. Residents must be provided experiences in evaluation, crisis evaluation and management, and triage of psychiatric patients. On-call experiences may be a part of this experience, but no more than 50%.

**10. Community Psychiatry:** This experience must expose residents to persistently and chronically-ill patients in the public sector, (e.g., community mental health centers, public hospitals and agencies, and other community-based settings). The program should provide residents the opportunity to consult with, learn about, and use community resources and services in

planning patient care, as well as to consult and work collaboratively with case managers, crisis teams, and other mental health professionals.

**Addiction, Community, Forensic, and Geriatric psychiatry:** requirements can be met as part of the inpatient requirements above the minimum six months, and/or as part of the outpatient requirement

### **Clinical Case Conferences and Specialty Lectures**

The seminars / presentations shall be prepared by the residents under the supervision of a faculty member. During the seminar, the presenting resident shall distribute a brief summary of his presentation as well as a complete bibliography on the subject. Case conferences shall focus on

interesting/unusual/difficult case from the inpatient or outpatient services who has been under the care of the presenting resident is discussed in detail regarding psycho-pathology, diagnosis, differential diagnosis and management

### **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 medical literature. Residents should be advised and supervised by qualified staff members in the conduct of research.

The specific content will be based on the relevance of the content to the resident's project

### **Neuroscience Update:**

This course will assist the residents in becoming knowledgeable about the current status of neuro-scientific thinking relevant to psychiatry. The course is divided into two parts: 1) Basic Neuroscience- addresses the current understanding of cellular and membrane physiology, synaptic transmission, and transmitter and receptor systems. 2) Biological Psychiatry-examines the conceptual and methodological issues in the biology of schizophrenia, Alzheimer's disease, mood disorders, and substance abuse.

### **Introduction to Medical Genetics:**

Coverage is provided of the fundamental knowledge in human genetics and genetic systems of the mouse and other model organisms. Topics include: introduction to concepts of inheritance (DNA, chromatin, genes, chromosomes); the human genome (normal genetic variation, SNPs, comparative genomes, molecular mechanisms behind inheritance patterns, and mitochondrial genetics); mouse genetics (classical mouse genetics, genotype- and phenotype-driven approaches, QTL mapping); microarrays (expression, genomic, ChIP (chromatin IP on chip), bioinformatics and use of genome databases); genetic association

studies (haplotype blocks, study design in complex disease and approaches to complex disease gene identification, pharmacogenetics and pharmacogenomics).

**Health Economics in Clinical Research:**

A practical foundation in economic evaluation of medical diagnostic procedures and therapeutic interventions is provided. The focus is on the development, analysis, and communication of economic data in the context of clinical research. Topics include: basic finance and organization of health care, evidence tables, utility theory, tree-structured decision models, health care cost accounting, cost-effectiveness, cost-utility and cost-benefit analysis, and special statistical issues in analysis of economic data.

**Clinical Research Seminar:**

This seminar integrates and builds on the core courses to provide practical experience in the development and critique of the methodological aspects of clinical research protocols and the clinical research literature. Assigned readings are drawn from contemporary literature and include both exemplary and flawed studies.

**Health Service Research:**

Research methods in health services research are explored. Topics include measurement of health-related quality of life, case mix and co morbidity, quality of health care and analysis of variations in health care practice. Advantages and disadvantages of studies that use large databases as well as advanced methods in analysis and interpretation of health services outcomes are addressed. This includes application of traditional research designs (e.g., randomized trials) to address health services research questions and the interface between health services research and health policy.

**Genetic Analysis of Human Diseases:**

This is an introduction to quantitative methods associated with the analysis of human genetic data, with an emphasis on applied projects aimed at identification of genes leading to human disease. Topics include: how a trait is determined to have a genetic component; testing Hardy-Weinberg equilibrium; utilization of linkage maps; detection and location of genes using linkage disequilibrium and other methods; gene-environment interactions; and a molecular overview of DNA techniques and evolving methodologies (SNPs, microarray analysis, etc.). Students are introduced to specialized software and internet-based resources for the analysis of genetic data.

**Questionnaire Design and Psychometrics:**

An introduction is provided to the elements of psychometric theory that are relevant to the conduct of clinical research. Topics include issues in questionnaire and scale design, types of scales, scale construction and validation; definition, measures and estimation of reliability and validity; statistical issues that result from unreliability (such as the effect of reliability on sample size estimation); and methods for assessment of the psychometric properties of scales

**Responsible Conduct of Research:**

A variety of ethical and related issues that arise in the conduct of medical research are explored. Topics include human subjects and medical research,

informed consent, ethics of research design, confidentiality, diversity in medical research, international research, relationships with industry, publication and authorship, conflict of interest, scientific integrity and misconduct, intellectual property and technology transfer, and social and ethical implications of genetic technologies and research.

**Research Management:**

This course addresses operational issues that arise in the conduct of a clinical research project. Topics include administration (human resources, project management, budget development and management), data management systems (databases, case report forms, data acquisition, quality assurance and quality control [QA/QC], monitoring and auditing), regulation (Investigational New Drug [IND]) applications and good clinical practice [GCP].

**Genome Technologies:**

Laboratory and computational methodologies for genetic sequencing, mapping and expression measurement are discussed. Techniques from computer science are used to make biological inferences from DNA and protein sequences. Topics include an introduction to sequence analysis software (e.g. Fasta, Blast, Multiple alignment); techniques for gene identification (introns, alternative splicing, repetitive DNA, and polymorphism discovery and detection); phylogenetic tree identification of coding regions and how to build a linkage disequilibrium map. Approaches to navigate existing biological databases are presented.

**Statistical Analysis of Gene Expression Data:**

The focus is on concepts in the design and data analysis of gene expression (microarray and serial analysis of gene expression) experiments. Statistical concepts include issues that arise when there are many more variables than samples, sources of variation (systematic and random), replication, scope of inference, experimental design, data processing, multiple testing, and validation. Methods that address the general objectives of identification of class differences, class prediction, and class discovery are covered.

**Introduction to Proteomics:**

Platform technologies and computational methodologies for protein profiling and interaction analysis are introduced. The platform technologies covered include mass spectroscopy, 2D gel electrophoresis, surface plasmon resonance, protein arrays and flow cytometry. Structural biology and high-throughput screening methods are also discussed.

## METHODS OF INSTRUCTION/COURSE CONDUCTION

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

1. Lectures
2. Seminar Presentation and Journal Club Presentations
3. Group Discussions
4. Grand Rounds
5. Clinico-pathological Conferences
6. SEQ as assignments on the content areas
7. Skill teaching in ICU, emergency and ward settings
8. Attend genetic clinics and rounds for at least one month.
9. Attend sessions of genetic counseling
10. Self-study, assignments and use of internet
11. Bedside teaching rounds in ward
12. OPD & Follow up clinics
13. 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 Resident Meetings

Each affiliated medical college approved to conduct training for MD Psychiatry will provide a room for resident 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 Endocrinology 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:**

1. 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.
2. Residents must acquire knowledge of and skill in educating patients about the technique, 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.
3. 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.

4. Training must include cultural, social, family, behavioral and economic issues, such as confidentiality of information, indications for life support systems, and allocation of limited resources.
5. Residents must be taught the social and economic impact of their decisions on patients, 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.
6. Residents should have instruction and experience with patient counseling skills and community education.
7. This training should emphasize effective communication techniques for diverse populations, 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.
9. Psychiatry residents are expected to acquire skill in the performance and interpretation of:
  - History and physical examination.
  - Admission of Psychiatric Patient
  - Conduct Individual Psychotherapy
  - Conduct Group Psychotherapy
  - Therapeutic Communication Skills
  - Initiating Behavior Modification
  - Behavioristic Charting
  - Electroconvulsive Therapy
  - Oxygen Administration
  - Cardiopulmonary Resuscitation
  - Assist with Lumbar Puncture
10. Skills pertaining to specific psychiatric disorders as mentioned in the Specialty training programme

### **3. Annual Grand Meeting**

Once a year all residents enrolled for MD Psychiatry should be invited to the annual meeting at UHS Lahore.

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:**

Candidate's Name: -----

Supervisor -----

Roll No. -----

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.

### **ECT Performed**

Sr.#	Date	Name of Patient, Age, Sex & Admission No.	Diagnosis	Procedure Performed	Supervisor's Signature
1					
2					
3					
4					

**Psychiatric Emergencies Handled**

Sr. #	Date	Name of Patient, Age, Sex & Admission No.	Diagnosis	Procedure/ Management	Supervisor's Signature
1					
2					
3					
4					

**Case Presented**

Sr.#	Date	Name of Patient, Age, Sex & Admission No.	Case Presented	Supervisor's Signature
1				
2				
3				
4				

**Seminar/Journal Club Presentation**

Sr.#	Date	Topic	Supervisor's Signature
1			
2			
3			
4			

**Evaluation Record**

(Excellent, Good, Adequate, Inadequate, Poor)

At the end of the rotation, each faculty member will provide an evaluation of the clinical performance of the resident.

Sr.#	Date	Method of Evaluation (Oral, Practical, Theory)	Rating	Supervisor's Signature
1				
2				

## **EVALUATION & ASSESSMENT STRATEGIES**

### **Assessment**

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

### **Resident-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, resident-controlled, collaborative, dynamic, contextualized, informal, flexible and action-oriented.

In the proposed curriculum, it will be based on:

- Self-assessment by the resident
- Peer Assessment
- Informal Internal Assessment by the Faculty

### ***Self Assessment by the Resident***

Each resident 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 resident to correctly identify his/her areas of weakness and to take appropriate measures to address those weaknesses.

### ***Peer Assessment***

The residents 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 weaknesses rather 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:***

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.

### **Summative Assessment**

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



## **MD PSYCHIATRY EXAMINATION**

### **Part I MD Psychiatry**

**Total Marks: 200**

All candidates admitted in MD Psychiatry 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

<b>Topics included in paper:</b>	<b>Paper-I</b>	<b>Paper-II</b>
1. Anatomy, Histology and Embryology	(20 MCQs)	(2 SEQs)
2. Physiology	(20 MCQs)	(2 SEQs)
3. Pathology	(20 MCQs)	(2 SEQs)
4. Biochemistry	(10 MCQs)	(1 SEQ)
5. Pharmacology	(10 MCQs)	(1 SEQ)
6. Neuroradiology	(05 MCQs)	-----
7. Behavioural Sciences	(10 MCQs)	(1 SEQ)
8. Biostatistics & Research Methodology	(05 MCQs)	(1 SEQ)

### **Part II MD Psychiatry**

**Total Marks: 430**

All candidates admitted in MD Psychiatry course shall appear in Part II examination at the end of 2<sup>nd</sup> 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;

- |                                   |           |
|-----------------------------------|-----------|
| 1. Ophthalmology & Otolaryngology | (10 MCQs) |
| 2. Pulmonary Medicine             | (10 MCQs) |
| 3. Cardiovascular Illness         | (10 MCQs) |
| 4. Endocrinology and Metabolism   | (10 MCQs) |
| 5. Allergy and Immunology         | (05 MCQs) |
| 6. Infectious Disease             | (05 MCQs) |

**Topics included in paper 2**

Principles of internal medicine including;

- |                                  |           |
|----------------------------------|-----------|
| 1. Nephrology                    | (10 MCQs) |
| 2. Neurology                     | (10 MCQs) |
| 3. Gastroenterology & Hepatology | (10 MCQs) |
| 4. Hematology & Oncology         | (10 MCQs) |
| 5. Dermatology                   | (05 MCQs) |
| 6. Rheumatology                  | (05 MCQs) |

**Components of Part II Examination****Theory:**

<b>Paper 1:</b>	<b><u>100 Marks</u></b>	<b>3 Hours</b>
10 SEQs (No Choice; 05 marks each)	50 Marks	
50 MCQs	50 Marks	
<b>Paper 2:</b>	<b><u>100 Marks</u></b>	<b>3 Hours</b>
10 SEQs (No Choice; 05 marks each)	50 Marks	
50 MCQs	50 Marks	

The candidates, who pass in theory papers, will be eligible to appear in the structured viva voce.

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 Psychiatry****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, practical/ clinical examination of 300 marks, log book assessment of 120 marks and thesis examination of 200 marks.

**Topics included in paper 1**

- |   |           |
|---|-----------|
| 1. Developmental, Behavioral and Social Psychology                            | (10 MCQs) |
| 2. General Psychiatry   | (10 MCQs) |
| 3. Mental Retardation & Mental Disorders<br>due to General Medical Conditions | (15 MCQs) |
| 4. Adult Psychiatry   | (15 MCQs) |
| 5. Pediatric & Adolescent Psychiatry  | (15 MCQs) |
| 6. Neurological Disorders/ Syndromes  | (10 MCQs) |

**Topics included in paper 2**

- |   |           |
|---|-----------|
| 1. Geriatric Psychiatry                         | (15 MCQs) |
| 2. Emergency Psychiatry                         | (10 MCQs) |
| 3. Forensic Psychiatry                          | (10 MCQs) |
| 4. Psychotherapy / Interventional Psychotherapy | (15 MCQs) |
| 5. Psychopharmacology & Therapeutics            | (25 MCQs) |

**Components of Part III Examination****Theory**

<b>Paper I</b>	<b><u>150 Marks</u></b>	<b>3 Hours</b>
15 SEQs (No Choice)	75 Marks	
75 MCQs	75 Marks	
 <b>Paper II</b>	 <b><u>150 Marks</u></b>	 <b>3 Hours</b>
15 SEQs (No Choice)	75 Marks	
75 MCQs	75 Marks	

The candidates, who pass in theory papers, will be eligible to appear in the clinical & viva voce.

**OSCE/ Viva**

**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 (each 25 marks)

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 5<sup>th</sup> calendar year of the MD programme and not later than 8th calendar year of enrolment. The examination shall include thesis evaluation with defense.

## RECOMMENDED BOOKS

### **Basic Sciences:**

1. **Snell's Textbook of Neuro-Anatomy** by Hamilton
2. **The Developing Human: Clinically Oriented Embryology** by Keith L. Moore and T.V.N. Persuad
3. **Pathology** W.A.D. Anderson
4. **Pathological Basis of Disease** by Kumar, Cotran Robbins
5. **Human Physiology the basis of Medicine.** Gillian Pocock, Christopher D. Richards
6. **Human Physiology** by Guyton
7. **Lippincott's Textbook of Biochemistry** Volume I and II.
8. **Lippincott's Illustrated Reviews in Pharmacology.**
9. **Textbook of Preventive and Social Medicine** by Park's
10. Rana M. H., Ali S. Mustafa M. **A Handnook of Behavioural Sciences for Medical and Dental Students.** Lahore: University of Health Science; 2007.
11. Fathalla M. F. and Fathalla M. M. F. **A Practical Guide for Health Researcher.** Cairo: World Health Organization; 2004.

### **Psychiatry:**

1. **Fish's Clinical Psychopathology** by Max Hamiltion
2. **Symptoms in the Mind** by Andrew Sims
3. The Maudsley **Hand book of practical psychiatry** ed: David Goldberg
4. **Psychiatric Examination in clinical practice** by: JP Leff and AD Isaacs
5. **BNF** (British National Formulary)
6. **Mental Health Ordinance**, Government of Pakistan 2001
7. **Basic Forensic Psychiatry** by Faulk
8. **Psychology** by Crider, Goethals, Soloman and Kavanaugh.
9. **Companion to psychiatric studies** by Johnstone, Freeman and Zealley
10. **Shorter Oxford Textbook of Psychiatry** by Gelder, Mayou and Cowen

11. Kaplan and Sadock's **Synopsis of psychiatry**
12. **Postgraduate psychiatry**, clinical and scientific foundations by Appleby Forshaw, Amos and, Barker.
13. **Psychiatric diagnosis** by Goodwin and Guze
14. **Practice guidelines for the Treatment of Psychiatric Disorders** (American Psychiatric Association)
15. **Psychiatric rehabilitation** by: W. Anthony, M. Cohen ,M. Farkas, C. Gagne
16. **Practice and Management of Psychiatric emergency care** ed: Gorton – Partridge.
17. Bailliere's **Clinical psychiatry: Drugs of abuse** Ed;H. Rommelspacher, M. A. Schuckit
18. **Biology of mental disorders** by Timothy G. Dinan
19. **Schizophrenia** by: Steven R. Hirsch and Daniel Wein berger
20. **Psychological disorders in General medical settings** by: N. Sartorius, D. Goldberg, G.de girolamo, J.A. Costae Silva, Y. Hecrubier, H.U.Wittchen
21. **Organic psychiatry** by W.A. Lishman
22. **Basic Forensic Psychiatry** by Faulk
23. **An introduction to the psychotherapies** By S. Bloch
24. **Child Psychiatry – A developmental approach** by P. Graham.
25. **The ECT handbook** : C.P. Freeman