

بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِیْمِ



CURRICULUM / STATUTES/ REGULATIONS

FOR 5 YEARS MD (Nephrology)

Faisalabad Medical University

Faisalabad

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Section A

VISION STATEMENT:

Faisalabad Medical University has been established since 05-05-2017 for purpose of imparting better medical education and encouraging and arranging extensive research and publication in the field of medical science. The vision of university is:

“Striving to achieve national and international stature in undergraduate and postgraduate medical education with strong emphasis on professionalism, leadership, community health services, research and bioethics”

MISSION STATEMENT

The mission of the University is:

“Educate Healthcare professionals to prevent, diagnose and treat human illnesses to practice evidence-based medicine with focus on lifelong healthcare in order to meet the challenges of community needs and competitive medical profession at the same time”

STATUTES

Nomenclature

The name of degree programmer shall be MD Nephrology.

Course Title:

MD Nephrology

Training Centers

Department of nephrology in Affiliated hospitals of Faisalabad Medical University, Faisalabad.

Duration of Course

The duration of course shall be five 5 years with structured training in a recognized department under the guidance of an approved supervisor.

Course structure:

1. **Core knowledge:** Competency based learning for trainees. (2 exams to be conducted by university at mid and end of Programme. Structural internal exam to be included throughout the Programme which is conducted by the department.
2. **Clinical Training** in respective specialty

3. Research and Thesis writing.

4. Mandatory Workshops throughout the course of programme will be conducted. The basic workshops will be attended by all trainees from all specialties and will be evenly distributed throughout the course:

- 1. Communication skills**
- 2. Research synopsis and thesis writing skills**
- 3. Basic Biostatistics and Research Methodology**
- 4. Information Technology Skills**
- 5. Initial Life Support**

At the end of each workshop, assessment will be done regarding the workshop and certificates will be issued to passing trainees only. The workshops will be conducted by the University and will be paid as in all post-graduate programmes and supervised by the department of Medical Education, FMU, Faisalabad. The trained certified coaches/teachers will be invited and they will get incentive from the university. All the interested trainers will contact the department for inclusion in trainers list.

Feedback of the facilitators will be recorded for the continuation of the process. Medical education department will issue yearly planner for these workshops in the light of curriculum document. University will certify it.

5. Specialty Specific workshops

Departments will be responsible for their conduction

The M.D. Nephrology course is structured in three parts:

Part I: Candidate will start his/her training in Nephrology department from 1st day till 6 months. Candidate will gain basic knowledge of the selected specialty i.e., anatomy, physiology and orientation to the subject, basic principles, history taking and case presentation, inpatient and out-patient care. During this time the candidate will select a topic for synopsis, complete his/her synopsis and will attend the mandatory workshops.

Part II: From 6 months till 2 years, he/she will do a rotational training in General medicine under a supervisor allocated in medical department. The candidate shall undertake clinical training in fundamental concepts of general medicine from 6 months till 2 years. During this period, the candidate must submit the synopsis for approval. At the end of 2nd year, the Intermediate examination shall be held in fundamental concepts of General Medicine/general surgery. The clinical training in Nephrology shall be rejoined from 3rd year onwards in the department of Nephrology.

Part III is structured for 3rd, 4th and 5th calendar years in MD Nephrology. The candidate shall undergo training to achieve educational objectives of MD Nephrology along with rotation in relevant fields.

Section :B

Admission Criteria

Central induction Policy as per Government rules

Registration and Enrollment

The number of PG Trainees/ Students and Beds to trainee ratio at the approved teaching site will be as per policy of Pakistan Medical & Dental Council

The University will approve supervisors for MD course.

Candidates selected for the courses after their selection and enrollment shall be registered with FMU as per prescribed Registration Regulation.

Accreditation Related Issues of the Institution

A. Faculty

Properly qualified teaching staff in accordance with the requirements of Pakistan Medical and Dental Council (PMDC). Supervisors will be decided by the university according to the set standards and rules.

B. Adequate resources

The university will provide adequate resources Including class-rooms (with audiovisual aids), demonstration rooms, computer lab, clinical pathology lab,

theaters, instruments and other equipment etc. for proper Training of the residents as per their course outcomes and objectives.

C. Library

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

Freezing of Program & Leave Rules

Freezing of training, Maternity leave, Ex Pakistan Leave and Extra Ordinary Leave etc. would be allocated through the Office of Dean Postgraduate to the competent authority.

Section C:

AIMS AND OBJECTIVES OF THE COURSE

AIM

The aim of five years MD programme in Nephrology is to train residents to acquire the competency of a specialist in the relevant field so that they can become good clinicians, teachers, researchers and community health provider in their specialty after completion of their training according to the global standards.

LEARNING OBJECTIVES:

GENERAL OBJECTIVES

MD Nephrology training would enable a student to:

Access and apply relevant knowledge to clinical practice:

- Apply scientific knowledge in practical form
- Appropriate to patient needs and context

- Critically evaluate latest technology
- Safely and effectively performs appropriate clinical skills & procedures:
- Consistently demonstrate perfect clinical skills
- Reflect procedural knowledge and technical skills at a level appropriate to the level of training
- Demonstrate manual clinical skills which is required to carry out procedures
- Maintain and acquire new skills

- Carries out procedures with complete attention to safety of patient, self and others
 - Design and implement effective management plans:
- Identify the clinical features, accurately diagnose and manage nephrology related issues
- Formulate a sound provisional diagnosis and management plan
- Formulate appropriate differential diagnosis
- Manage patients in a way that exhibit sensitivity to their physical, social, cultural and psychological needs

- Accurately identify benefits, risks and mechanism of action of current and emerging treatment modalities
- Manage complexities and uncertainty in treatment of patients
- Assess and implement a risk management plan
- Organize diagnostic tests, imaging and consultation as required:
- Select medically appropriate investigation tool
- Interpret diagnostic images and investigations
- Critically evaluates advantages and disadvantages of different investigation modalities
- Communicate effectively:
 - Communicate proper information to patients (and their family) about clinical procedures & risks associated.
 - Communicate with patient (and their family) about treatment options including benefits and risks associated with each procedure
- Communicate and co-ordinate health management teams

- Initiate resolution of misunderstandings or disputes happening during management

- Recognize the value of knowledge and research and its application to clinical practice
 - Appreciate ethical issues associated with Nephrology:
- Professionalism by:
 - Demonstrating a critically reflective approach to Nephrology
 - Regularly carrying out self and peer reviewed audit
- Acknowledging and learning from mistakes

- Work in association with members of an interdisciplinary team where appropriate:

- Establish a care plan for patients in collaboration with members of an interdisciplinary team
- Employ a consultative approach with colleagues
- Recognize the need to refer patients to other professionals.

- Management and Leadership

- Manage and lead clinical teams
- Recognize the importance of different types of expertise which contribute to the effective functioning of clinical team
- Maintain clinically relevant and accurate contemporaneous records
- Health advocacy:
 - Promote health maintenance of patients
 - Advocate for appropriate health resource allocation

SPECIFIC LEARNING OUTCOMES

Residents completing MD Nephrology training would have formal instruction, clinical experience, and would be able to demonstrate competence in the evaluation and management of adult and pediatric patients and applying scientific principles for the identification, prevention, treatment and rehabilitation of acute and chronic disorders in Nephrology. Pathophysiology, pathology, natural history and management of glomerular, tubulo-interstitial and vascular diseases of the kidney. The candidate should be familiar with both primary renal diseases and those which occur in the context of systemic disorders such as diabetes mellitus, connective tissue disease, infectious diseases, haematological diseases, as well as other metabolic infiltrative and inflammatory diseases and also in the context of diseases in remote organ systems such as heart failure and hepato-renal syndrome

- Diagnosis, differential diagnosis, investigations and management of acute renal failure and its complications.
- Diagnosis, differential diagnosis, investigation and management of chronic renal failure and its complications.
- The physiology of, indications for, complications of, the various forms of dialysis.
- Diagnosis, physiology, pathophysiology & therapy of disorders of water, sodium, potassium and acid-base regulation.
- Diagnosis, pathophysiology and therapy of disorders of calcium, phosphorus magnesium balance, sodium & potassium balance.
- Renal pharmacology including the effect of disturbances in renal function of the use of common drugs, the effects of various drugs and therapeutic procedures on the kidney, toxicology, the use of dialysis in the treatment of overdoses and poisoning.
- Basic principles of CRRT
- The diagnosis, differential diagnosis and therapy of all forms of hypertension, including complications of anti-hypertensive medications.
- Pathogenesis and management of renal stone formation and urinary tract infections.
- The diagnosis, investigation, medical management of urinary tract obstruction.
- The principles of immunology involved in the mechanisms of renal disease.

- The management of renal transplant, including understanding of the donor and the recipient's selection, histocompatibility typing, mechanisms of rejection and management of immunosuppression and its complications.
- Genetics, cell biology and molecular medicine

- Additional skills

- Urinalysis including examination of the urine sediment.

- Interpretation of radiological, radio-isotopic and ultrasound examination of the urinary tract

- Performance of renal biopsies, including indications, preparation and complications.

- Interpretation of renal histopathology slides.

- The ability to establish access for acute dialysis (passing double lumen catheter).

- Management of staff working in a renal unit in an organized team fashion.

- Basic administrative skill required in the management of dialysis unit and renal patients.

- Be able to identify the problems related to practicing renal medicine in a developing country.

Understand the principles of clinical research and be able to write a basic research protocol.

Content list:

Section D:

PROGRAMME FORMAT

SCHEME OF THE COURSE OF MD/MS PROGRAMME

A summary of 5 years MD Nephrology programme is as under:

During first 2 years of MD Nephrology:

Principles of internal medicine, Relevant basic sciences . First 6 months in nephrology and 18 in internal medicine with 2 mandatory rotations and submission of synopsis

During 2- 5 years of training:

Clinical component: Training in Nephrology with compulsory rotations and workshops

Research component: Research work, thesis must be completed and submitted at least 6 months prior to the end of training.

Rotations: Compulsory rotations in the relevant fields

Sr. No	Rotations	Duration	Placement
1	Renal Critical Care	2 months	Part III
2	Urology	2 months	Part III
3	Renal Transplant	2 months	Part III
4	Nuclear medicine	1 month	Part III

Section E:

Assessment Plan:

Program duration	Course contents	Assessment method
At the end of 2 nd year of program	<ol style="list-style-type: none">1. Revision of core MBBS component including basic and clinical components.2. Basic knowledge and Acquiring skill related to the specialty according to the objectives made.<ol style="list-style-type: none">1. First 2 mandatory Workshops as described in course outline.3. Submission of synopsis	<p>Intermediate Examination: to be taken by university. It will include:</p> <ol style="list-style-type: none">a) Written=300b) TOACS/ OSCE /LONG CASE/ SHORT CASE=300 <p>Total Marks =600</p>
At the end	<ol style="list-style-type: none">1. Training to act as an individual while managing patient or	Final Examination to be

of 4 th /5 year	<p>performing any task as defined by the objectives.</p> <ol style="list-style-type: none"> 2. Training to act as a teacher, researcher, leader and a player in a team. 3. Overall development of a health care professional with all the set competencies of the Program. 4. All the mandatory and specialty oriented workshops to be completed as mentioned in the curriculum 5. Rotations as described in the curriculum completed 6. Thesis completion and submission 	<p>conducted by university.</p> <p>It will include:</p> <ol style="list-style-type: none"> a) Written=300 b) TOACS/OSCE/LONG CASE/SHORT CASE=300 c)Continuous Internal Assessment=100 <p>Thesis evaluation =300</p> <p style="text-align: center;">Total</p> <p>marks=600+100+300=</p> <p style="text-align: center;">1000</p>
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Components of Mid-term Examination

- Written: Total Marks =300

- (100MCQs) 2 Marks each
- (10 SEQs) 10 Marks Each
- Clinical, TOACS/OSCE/ 2 Short Cases/ 1 long case = 300

Total = 600

Components of Final Examination:

- Written 300 Marks
- Clinical, TOACS/OSCE = 300 Marks
- Continuous internal assessment =100
- Thesis Evaluation = 300 Marks

Total = 1000 Marks

Intermediate Examinations:

Intermediate examination would be conducted for the candidate getting training, at the end of 2nd calendar year of the program.

Eligibility Criteria:

1. Candidate remained on institution roll during the period approved for appearing in examination.
2. Certificate of completion of mandatory workshops.
3. Completion of Log book signed by supervisor/concerned Head of Department.
4. Certificate of submission of Ethical Review Committee approved synopsis to the university if required as per rules of synopsis submission.

5. Evidence of payment of examination fee as prescribed by the University from time to time.
6. Certificates submitted through Principal/Dean/Head of academic institution shall be accepted as valid towards the candidature of an applicant.
7. Submission of application for the examination and the conduct of examination.

Intermediate Examination Schedule and Fee:

- a) Intermediate Examination at completion of two years training, will be held twice a year.
- b) There will be a minimum period of 30 days between submission of application for the examination and the conduction of examination.
- c) Examination fee will be determined periodically by the University.
- d) The examination fee once deposited cannot be refunded / carried over to the next examination under any circumstances.
- e) The Controller of Examinations will issue Roll Number Slips on receipt of prescribed application form, documents satisfying eligibility criteria and evidence of payment of examination fee.

Written Examination:

The written examination will consist of 100 single best answer type Multiple Choice Questions. Each correct answer in the multiple-choice question paper will

carry 02 marks. The short essay question will be clinical scenario or practice based, and each question will carry 10 marks.

The marks of written exam will be divided as follows:

- MCQs (single best type) = 200 Marks
- SEQs (10 marks) =100

Declaration of Results

The candidates scoring 60% marks in the written examination will be considered pass and will then be eligible to appear in the clinical and oral examination.

Clinical, TOACS/OSCE:

The clinical and TOAC/OSCE & Oral examination will evaluate patient care competencies in detail,

The examination will be of 300 total marks consisting of the following components

Clinical, TOACS/OSCE = Total Marks 300

a) 2 short Cases (50 each) = 100 marks

b) 1 Long Case = 100 marks

c) TOACS/OSCE & ORAL = 100 marks (10 stations with 10 marks each)

- Each short case will be of 10 minutes duration, 05 minutes will be for examining the patient and 05 minutes for discussion.

- The long case and oral examination will each be of 30minute duration.

Declaration of Results

- A student scoring 60% in long case, 60% in short cases ad 60% in TOACS/OSCE will be considered pass in the examination.
- A maximum total of four consecutive attempts will be allowed in the Intermediate Examination during which the candidate will be allowed to continue his training program. If the candidate fails to pass his Intermediate Examination within the above-mentioned limit of four attempts, the candidate shall have to take entire intermediate examination including written examination again.

Final Examination

(at the end of 5th Calendar year of the program)

Eligibility Criteria:

To appear in the Final Examination the candidate shall be required:

1. Result card showing that the candidate has passed intermediate Examination.
2. Certificate of completion of 5 Years training duly signed by Supervisor, Head of parent Department and that of the Head of Department where rotations were done (if prescribed in the curriculum).
3. Evidence of thesis submission to Department of Examination of the University.
4. Evidence of payment of examination fee as prescribed by the university from time to time.

5. The examination fee once deposited cannot be refunded / carried over to the next examination under any circumstances.
6. Candidate remained on institution roll during the period required for appearing in examination.
7. Only those certificates, submitted through Principal/Dean/Head of academic institution shall be accepted.

Final Examination Schedule and Fee:

- a) Final examination will be held twice a year i.e. at least six months apart.
- b) Examination fee will be determined and varied at periodic intervals by the University.
- c) The examination fee once deposited cannot be refunded / carried over to the next examination under any circumstances.
- d) The Controller of Examinations will issue an Admittance Card with a photograph of the candidate on receipt of prescribed application form, documents satisfying eligibility criteria and evidence of payment of examination fee. This card will also show the Roll Number, date / time and venue of examination.

Written Part of Final Examination

- a) The written examination will consist of 100 single best answer type Multiple Choice Questions (MCQs) and 10 Short Essay Questions (SEQs). Each correct answer in the Multiple-Choice Question paper will carry 02 marks. Each Short Essay Question will carry 10 marks.

b) The Total Marks of the Written Examination will be 300 and to be divided as follows:

- Multiple Choice Question Paper Total Marks = 200
- Short Essay Question paper Total Marks = 100

Total=300

Paper 1

- MCQs 100 (2marks each)

Paper 2

- SEQs 10 (10 marks each)
 - a. Paper 1 shall comprise of hundred (100) "single best answer" type Multiple Choice Questions. Each Question shall carry 02 marks.
 - b. Paper 2 shall comprise of ten (10) Short Essay Questions, each carrying 10 marks.

Declaration of Results

- c. The candidates scoring 60% marks in aggregate of Paper 1 and Paper 2 of the written examination will be declared pass and will become eligible to appear in the Clinical Examination.

Clinical, TOACS/OSCE:

a) The Clinical Examination will consist of 04 short cases, 01 long case and TOACs/OSCE with 01 station for a pair of Internal and External Examiner. Each short case will be of 10minutes duration, 05 minutes will be for examining the patient and 05 minutes for discussion.

b) The Total Marks of Clinical and TOACs/OSCE & Oral will be 300 and to be divided as follows:

- **Short Cases (4) Total Marks = 100**
- **Long Case (1) Total Marks = 100**
- **TOACS/OSCE & ORAL Total Marks = 100**

Total= 300

Declaration of Results

- A student scoring 60% in long case, 60% in short cases ad 60% in TOACS/OSCE will be considered pass in the examination.
- Candidate, who passes written examination, shall be allowed a maximum of Three availed attempts within 2 years to pass Clinical/Oral examination. However, in case of failure to pass Clinical examination within stipulated attempts the credit of passing the written examination shall stand withdrawn and candidate shall have to take entire examination including written examination, as fresh.

- The Candidate who has completed his/her training along with all the requirements mentioned in the curriculum shall have to appear in the written of final examination at least once within a period of 8 years (from the time of induction). Failure to compliance with this the matter will be referred to the competent authority through proper channel for final decision.

Synopsis and Thesis Writing:

Thesis writing must be completed and thesis be submitted at least 6 months before the end of final year of the program.

Thesis evaluation & defense will be carried out at the end of 5th calendar year of MD Nephrology program.

Submission / Evaluation of Synopsis

- a) The candidates shall prepare their synopsis as per guidelines provided by the Advanced Studies & Research Board, available on the university website.
- b) 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.
- c) Synopsis of research project shall be got approved by the end of the 2nd year of MD program. The synopsis after review by an Institutional Review Committee,

shall be submitted to the University for consideration by the Advanced Studies & Research Board, through the Principal / Dean /Head of the institution.

Submission and evaluation of Thesis Evaluation (300 Marks)

1. The Thesis shall be submitted to the Controller of Examination through Head of Institute, duly signed by the Supervisor, Co-Supervisor(s) and Head of the Department.
2. Submission of Thesis is a prerequisite for taking Final Theory Examination.
3. Examiners shall be appointed by the Vice chancellor on recommendation of Controller of Examination from a panel approved by Advance Studies & Research Board for evaluation of thesis.
4. All MD/MS/MDS thesis shall be evaluated by two examiners, 1 internal and 1 External examiners(The supervisor must not be the evaluator)
5. Thesis defense shall be held after approval of evaluation reports by Advanced Studies & Research Board.
6. Thesis defense shall be conducted by the external examiners who evaluated Thesis of the candidate.
7. The candidate scoring 60% marks in Thesis defense examination will be declared as pass in the examination.

Continuous Internal assessment

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

Attendance

- Students joining postgraduate training program shall work as full-time residents during the duration of training maximum 2 leaves are allowed in one month, and should take full responsibility and participation in all facets of the educational process. The period of training for obtaining degrees shall be four completed years

Presentations

- In addition to the conventional teaching methodologies interactive strategies will also be introduced to improve both clinical and communication skills in the upcoming consultants. Presentations must be conducted regularly as scheduled and attended by all available faculty and residents. As a policy, active participation of the postgraduate resident will be encouraged. Proper written feedback will be given for these presentations and that will be a part of Resident's Portfolio as well. Reflection of the events to be written by the residents as well and must be included in their portfolios.

Task evaluation

- This competency will be learned from journal clubs, review of literature, policies and guidelines, audit projects, medical error investigations, root cause analysis and awareness of healthcare facilities. Active participation and ability to fulfill given tasks will be encouraged. Written feedback must be given and documented to be included in portfolio

Continuous Internal Assessment format (100 Marks)

1. The award of continuous internal assessment shall be submitted confidentially in a sealed envelope.
2. The supervisor shall submit cumulative score of internal assessment of all training years to be added together to provide a final cumulative score of Continuous Internal Assessments of all the trainees to the Head of the Department/ Dean of Post Graduate studies.
3. The Head of Department/ Dean shall submit the continuous internal assessment score through the Principal/ Registrar office to the Examination Department of the University. Score of continuous internal assessment once submitted shall be final and cannot be changed subsequently under any circumstances.
4. The weightage of internal assessment in the final examination will be 10%.
5. Continuous Internal Workplace Based Assessments will be done by the supervisors, that may be based on but not limited to:
 - a. Generic and Specialty Specific Competency Assessments
 - b. Multisource Feedback Evaluations
 - c. Assessment of Candidates' Training Portfolio

TOOLS OF ASSESSMENT FOR THE COURSE:

TOOL USED:	DOMAIN TESTED:
MCQs	Knowledge
SEQs	Knowledge

TOACS/OSCE	<p>Knowledge.</p> <p>Skill</p> <p>Attitude</p>
PRESENTATIONS (wards, seminars, conferences, journal clubs)	<p>Knowledge.</p> <p>Skill</p> <p>Attitude</p>
Portfolios and log books.	<p>Skill</p> <p>Attitude</p>
Short cases.	<p>Knowledge</p> <p>Skill</p> <p>Attitude</p>
Long cases	<p>Knowledge</p>

	Skill Attitude
Continuous internal assessment	Skill Attitude
Feedback from department where rotation is being conducted.	Knowledge Skill Attitude

Section F

Award of MD Nephrology Degree

A candidate having declared successful in all the components of examination i.e. **Theory, Clinical and Thesis** shall be declared pass and shall be conferred degree in the name of M.D. Nephrology

Section G:

Log Book

As per format approved by the university, available on university website

Section H

Portfolio:

As per format approved by the university, available on university website.

Section I

Paper Scheme

INTERMEDIATE EXAMINATION

WRITTEN

Sr. No	Speciality	No. of MCQs	No. of SEQs
1	General Medicine	70	7
2	Nephrology Specific Questions	30	3

Final Examination

WRITTEN

Sr. No	Topic	Number of MCQs	Number of SEQs
1	Anatomy Physiology	10	1
2	Acid Base	35	1
3	Electrolytes	35	1
4	Acute Kidney Injury	35	1
5	Chronic Kidney Disease	40	2
6	Dialysis	25	2
7	Transplant	20	2

Section J

Resources and references (books and other resource material)

1. Clinical comprehensive Nephrology
2. Hand book of dialysis
3. Hand book of Kidney Transplantation
4. Oxford Renal Transplant
5. Schrier diseases of Kidney
6. Primer on Kidney Diseases

Section K

List of authors and contributors

Signed by head of Department

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