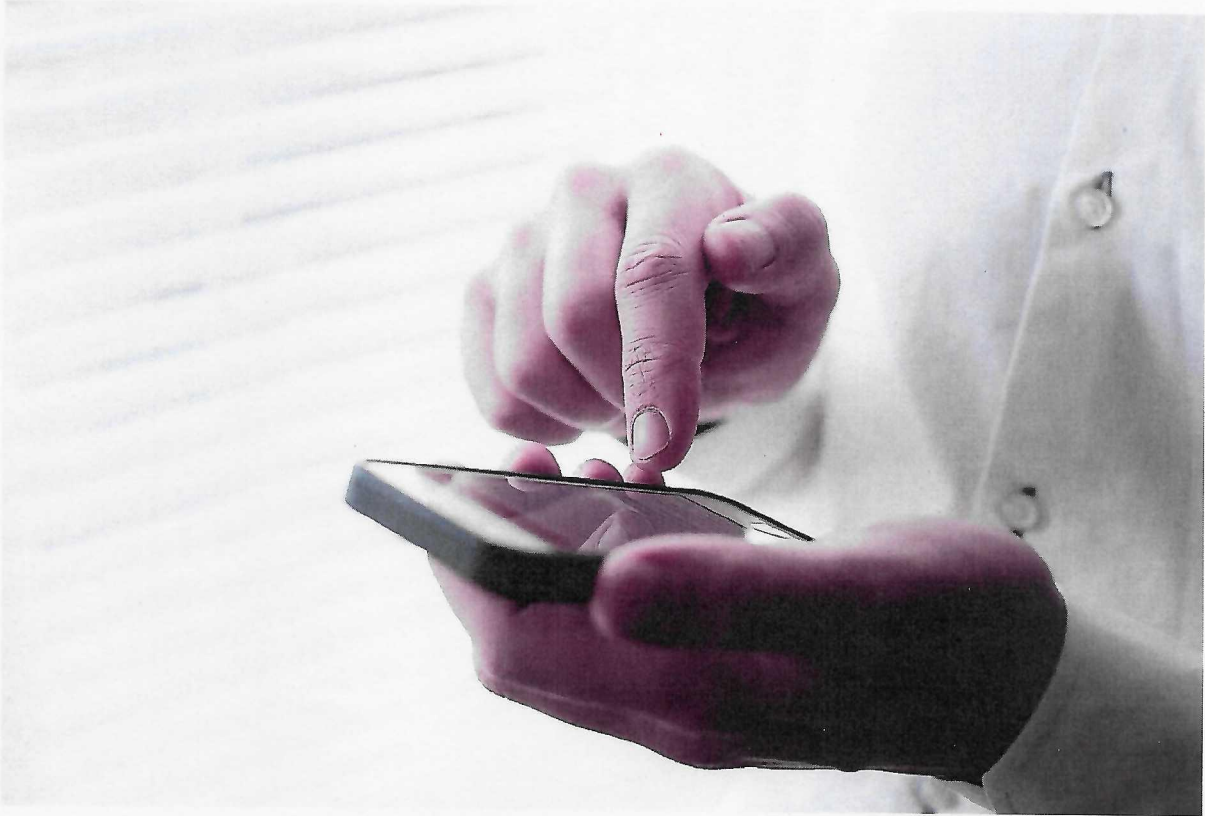


# Syllabus for DM (Nephrology) Programme



**Guru Gobind Singh Indraprastha University**

A State University established by the Govt. of NCT of Delhi

**University School of Medicine and Allied Health Sciences**

# Syllabus for DM (Nephrology) at the GGS IP University, Delhi.

## NEPHROLOGY — D M degree

### 1. PREAMBLE

The prime concern of the D M (Nephrology) course is to develop patterns of teaching to train candidates in the principles and practice of Nephrology to equip them to function as faculty/consultants in Nephrology. This educational experience is also imparted in an atmosphere of clinical experience & research.

### 2. AIMS AND OBJECTS OF THE COURSE

During the period of training student is to impart thorough and comprehensive training to the candidate in the various aspects of the specialty to enable him:

- I. To function as Faculty/consultants in the specialty
- II. To acquire performance skills for diagnostic and therapeutic procedures and interventions.
- III. To diagnose, plan and interpret investigations and treat various acute and chronic kidney ailments by relevant therapeutic methods
- IV. To plan and set up independent Nephrology Unit catering to clinical and investigative Nephrology
- V. To carry out and help in conducting applied research in Nephrosciences.

### 3. ADMISSION REQUIREMENTS

For admission to D M (Nephrology) course, a candidate is required to possess MD/DNB degree either in Medicine or in Pediatrics of an Institute/University recognized by the Medical Council of India.

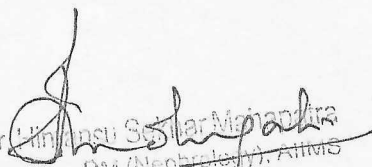
### 4. DURATION OF THE COURSE

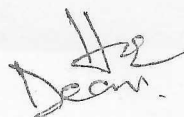
Three academic years.


### 5. METHOD OF SELECTION

The selection of candidates for admission to D M (Nephrology) course is to be made on the basis of an entrance examination in theory held by the Institute / University.

The selection should be based on merit only.

  
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DM (Nephrology), AIMS  
Assistant Professor of Nephrology  
PGIMER, Dr. R M L Hospital  
New Delhi

  
Dean.

  
जॉ. (प्रो.) श्याम सुंदर / Dr. Prof. SHYAM SUNDE  
वरि. वृक्क रोग विज्ञान एवं अक्षांश वृक्क सेवा एकक  
Sr. Nephrologist & Head, Nephro Deptt.  
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Dr. Ram Manohar Lohia Hospital New Delhi



## 6. TEACHING METHODS

During the period of training the candidates follow in-service training-cum-residency programme. He/ she works as a Senior Resident and is given gradually increasing responsibility in decision making

The day-to-day work of the trainees is supervised by the Consultants of the department of Nephrology. The posting is so organized that the trainee gets posted in various areas like OPD, various indoor wards, Dialysis, laboratories, Renal Transplantation, Critical care Nephrology, Research etc. in a rotation basis during his/her tenure of three years. She/he participates in the consultation service provided by the department to the Institute. Besides in-service activities candidate shall involve himself/herself in the programme of bedside demonstrations, seminars, tutorials, group discussion, workshops, journal clubs and lectures as organized by the department from time to time.

## 7. SYLLABUS

### (A) Basic Nephrology:

Anatomy, Physiology, Biochemistry, Immunology, Genetics, Pharmacology, Pathology and Microbiology relevant to the field of nephrology including electrolyte and acid base disorders.

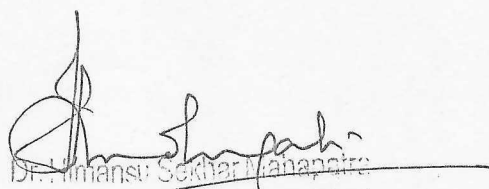
### (B) Clinical Nephrology:


Pathogenesis of renal diseases and renal Diseases of the urinary tract (glomerular diseases urinary tract infection, Tubulointerstitial diseases, inherited diseases, toxic nephropathies, systemic diseases with renal involvement, renal stone disease, urinary tract obstruction, vascular diseases of kidney, hypertension, neoplasia etc)

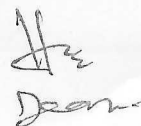
- Renal failure (diagnosis and medical management)
- Principles and practice of dialysis
- Renal transplantation
- Recent advances in nephrology
- Biostatistics and clinical epidemiology
- Ethics, psychosocial, economics of management of renal diseases,
- Human organ transplant act and medicolegal aspects of transplantation.

### (C) Interventional Procedures:

During the three academic years a candidate will be required to have achieved proficiency in performing and supervising following procedures:

  
Dr. Himansu Sekhar Mahapatra  
DM (Nephrology), AIIMS  
Assistant Professor of Nephrology  
PGIMER, Dr. R M L Hospital  
New Delhi

  
Dr. (Prof.) SHAM SUNDE  
वरिष्ठ. वृक्क रोग बिज्ञानी एवं अध्यक्ष, वृक्क रोग एकक  
Sr. Nephrologist & Head, Nephro Deptt.  
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Dr. Rām Manohar Lohia Hospital, New Delhi:

  
Dean

- I. He/she would be expected to have performed a minimum of 50 renal biopsies, 300 hemo-dialysis including CVVHD, CRRT and 50 peritoneal dialysis.
- II. The candidate would be expected to involve and be trained in all aspects of CAPD programme. The candidate would also be expected to have inserted at least 10 CAPD Catheters, 50 Internal jugular, 50 Femoral and 50 Subclavian vascular access catheters.
- III. The candidate would maintain record of all the procedures/ interventions in a log book, which would be certified by the Head of the department.
- IV. A proficiency certificate from the head of the department regarding the clinical competence and skillful performance of procedures by the candidate will be necessary before he would be allowed to appear in the examination.
- V. Six monthly internal assessments would be done to monitor and evaluate the training in various areas/ subspecialties of Nephrology.

**(D) Investigative work-up:**


The candidate is expected to perform routine urine examination and ultra-sonography. In addition he/she must familiarize himself/herself with the following investigations:

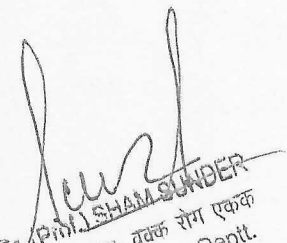
*Laboratory:*


- Electrolyte and acid base analysis
- Renal function tests
- Auto analyzer functioning
- Renal pathology interpretation including immuno-fluorescence and electron microscopy.

*Radiological:*

- Intravenous urography
- Micturating cystourethrography
- Digital subtraction angiography
- Selective renal angiography and interventional angioplasty and stenting
- Selective renal venography
- Doppler studies
- CT imaging
- Magnetic resonance imaging
- Antegrade and retrograde pyelography

  
 Dr. Manish Sehgal M/Upatya  
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 Assistant Professor of Nephrology  
 PGIMER, Dr R M L Hospital  
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*Microbiology:*

- Viral, Bacterial and fungal cultures, Serological and PCR techniques

*Immunological tests:*

- ANCA, ANA, anti DsDNA, complement, anti GBM ab, cryoglobulin, immunoelectrophoresis

*Tissue typing:*

- Cross match, serological typing, molecular HLA typing, PRA
- Renal function testing
- Renal plasma flow, GRF
- Renal concentrating, diluting capacity
- Micro albuminuria
- Proteinuria measurement
- Urinary acidification
- Renal sodium and potassium handling

**(D) Research Projects:**

1) Each candidate will be required to undertake research under the guidance of the consultants. They will be required to submit a research plan within 6 months after joining the course and submit a dissertation not later than 2 years after joining the course. In addition the candidate will participate in all the departmental research activities.

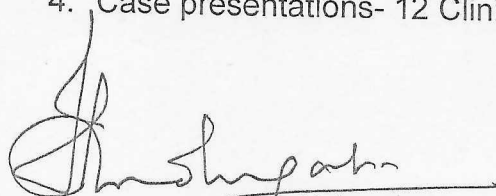
2) One paper which must be submitted for publication in any indexed medical journal before the date of final examination.

3) The candidate should write two reviews on the topics presented by him in the seminars and submitted to the index/ Indian Journal for publication.

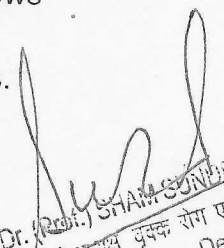
**8. ACADEMIC AND CLINICAL WORK REQUIREMENTS BEFORE APPEARING FOR FINAL EXAMINATION**

(Log book to be maintained and certified by HOD)

1. Journal Presentations in Journal Club- once in two weeks ( Journal Presentations)
2. Review Club presentations- once in 4 weeks Reviews
3. Once a month Nephropathology meeting
4. Case presentations- 12 Clinical case presentations.



Dr. Himansu Sekhar Mahapatra  
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Assistant Professor of Nephrology  
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5. Invasive procedures and non- invasive procedures – Log book to be maintained.

## 9. EXAMINATION SYSTEM

- I. **Dissertation evaluation:** The dissertation submitted by the candidate will be evaluated by two external examiners and would need to be approved before the candidate is allowed to appear in the theory examination.
- II. **Written examination:** There will be 3 papers; each of 3 hours duration carrying 100 marks each. Each paper shall consist of ten short notes of 10 marks each.
- Paper I: basic Sciences as applicable to nephrology
- Paper II: Clinical Nephrology including Pathology, pathophysiology and therapeutic aspects.
- Paper III: Recent advances in nephrology
- III. **Clinical examination:** There would be four examiners. These would include two internal (one head of department and the other by rotation) and two external examiners. There would two short and one long clinical case. Candidate would also be assessed on histopathology slides, radiological investigations and oral viva-voce.

The candidate must pass separately in theory (pass percentage – 40%), practical (pass percentage – 50%) and in aggregate of the two (pass percentage – 50%)

## 10. SUGGESTED BOOKS AND JOURNALS

Following books and journals are suggested for reading. Latest edition should be made available in Central library & departmental Library.

### Books

1. The Kidney
2. Diseases of kidney and urinary tract
3. Heptinstall's Pathology of the kidney
4. Hand book of dialysis
5. Kidney Transplantation
6. Oxford Text Book of Nephrology

### Editor

Brenner and Rector

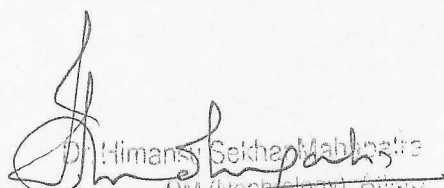
Schrier and Gottschalk

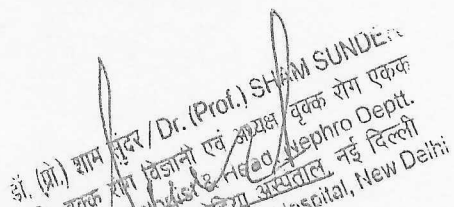
J Charles Jennets

Daugirdas

Peter Morris

Alex division, Stewart  
Cameron et al

  
Dr. Himanshu Sekher Mahapatra  
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7. Massry and Glassock's Text Book of Nephrology

Saul G Massry and RJ  
Glassock

8. The Kidney: Physiology and Pathophysiology

DW Seldin and G Giebisch

9. Essential Atlas of Nephrology

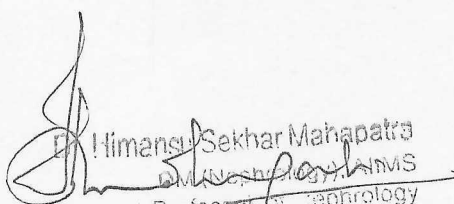
RW Schier

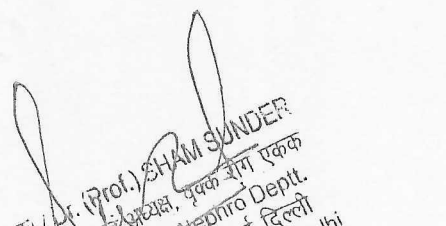
10. Immunological Renal Disease

EG Neilson and WG  
Couser

**Journals**

1. American Journal of Nephrology
2. Kidney International
3. American Journal of Kidney Diseases
4. Nephrology Dialysis and Transplantation
6. Journal of American Society of Nephrology
7. Seminars' in Nephrology
5. Indian Journal of Nephrology
6. Electronic edition of Up-to-date in Nephrology and Hypertension
8. Current opinion in Nephrology and Hypertension
9. New England J of Medicine
7. Lancet
8. Transplantation

  
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