FELLOWSHIP IN DIALYSIS MEDICINE

D Y PATIL UNIVERSITY, KOLHAPUR

DEPARTMENT OF GENERAL MEDICINE
D Y PATIL MEDICAL COLLEGE, KOLHAPUR

1. **Proper name of certificate course:**
   Fellowship in Critical Care Medicine (FCCM)

2. **Duration of the course:** 1 year or 2 Semesters.

3. **Eligibility criteria for admission**: MD or DNB passed in General Medicine / Chest Medicine / Anaesthesia

   Intake capacity: As per University regulations.

4. **Scheme of examination:** Examination to be conducted at end of each semester within 15 days of end of semester comprising of theory paper and practical examination.

5. **Infrastructure required for conducting the course:**

- Hospital:
  - Medical Intensive Care Unit Respiratory Intensive Care unit, Surgical Intensive Care Unit, Dialysis Units, Emergency Care
  - Supportive Areas: Radiology, Pathology & Biochemistry (24 hrs),
- Classroom & Seminar Room for didactic teaching & discussions
- Library
  - General library with relevant books and journals
  - Department library with relevant books and journals

- Material:
- Cases: The medical ICU admits approximately 1200 patients per year provides a wide range of patients for learning critical care.
- ICU equipment:
    - Class I Ventilators
    - Multiparameter monitors
    - Continuous renal replacement therapy
    - Bedside ultrasonography and echocardiography machine
    - Temporary pacemaker
    - Defibrillator
    - Fiberoptic bronchoscope
    - Infusion pumps

6. **Faculty required with their qualification and experience**

- Intensivist: MD General Medicine with minimum 5 years-experience, post MD in the field of Critical Care Medicine + Teaching experience of 5 years for MBBS students and MD students.

7. **Advertisement**

- On the institutional website and the intranet
- On the notice boards of the college

Basic qualification: Any candidate with a registered MD or DNB degree in the subjects of

General Medicine (Internal Medicine), Chest Medicine or Anaesthesia

8. Interview

By a panel of experts of three - including the head of the institute and 2 internal experts.

9. Selection of candidate: A total number of candidates per year will be as per University regulations. Selection will be based on:

- Performance at interview 30%
- University level academic merits (20%)
- Publications if any (20%)
- Recommendations from PG teacher (20%)

10. Complete curriculum of the course:

Core Subject:

A) Hemodialysis

Vascular Access for Hemodialysis
Mechanical aspects of dialysis.
Dialyzers.
The Hemodialysis procedures
Kinetic Modeling in Hemodialysis.
Reuse of Hemodialyzers.
Complications during Hemodialysis.
Improving Outcomes in Dialysis Patients.

Alternative Hemodialysis techniques.
CVVHD/CVVHDF/CVVH/
CAVH/CAVHD/CAVHDF
SLED
SCUF/ Plasmapheresis

B) Peritoneal dialysis

Peritoneal access devices.
Peritoneal Dialysis Clinical practice. [Acute, CAPD/CCPD/CIPD/NPD etc.]
Peritoneal Dialysis infectious complications.
Peritoneal Dialysis: Noninfectious complications
Peritoneal Dialysis: Intra abdominal Pressure -Related Complications.
Adequacy of Peritoneal Dialysis PET.

C) Care of ESRD patient

Acid base Homeostasis.
Nutritional Management of Dialysis Patients.
Gastrointestinal Disease in Dialysis Patient.
Anemia and Erythropoiesis Inducing agents in dialysis patients.
Cardio vascular disease in Dialysis patients.
Metabolic Abnormalities in Dialysis patient.
Neurologic aspects of Dialysis patient.
Mineral Bone disease in Dialysis Patient.
Dialysis Amyloidosis.
Acquired Cystic Kidney Disease.
Diabetes and Dialysis
Drug used in Dialysis
Rehabilitation and Psychosocial Issues.
Surgery in Dialysis patients.

D) Dialysis in special situations

Pediatric Dialysis
Pregnancy in Dialysis patients.

Treatment of Poisoning with Extracorporeal methods.
Dialysis of patients in intensive care unit- HIV infected patient and dialysis.

E) Water treatment in dialysis unit

R.O. plant [details of various steps and there importance and maintenance of plant]
Care of the plant
Importance of regular water analysis

F) Teaching scheme: Total periods and periods allotted to each topic

Didactic lectures: These will be held once a week and will be delivered either by a faculty member or by a specialist.

Dialysis handling by the Candidate

1. Each student will compulsorily perform dialysis himself daily and the log book of which will be maintained by the student.
2. Student will be taught the importance of vascular access preplanning and care of it, as the vascular access is life line of the Dialysis patient.
3. Intensive care patients and their dialysis is an important aspect of Intensive Care Nephrology. Students will attend, handle and maintain a log book.
4. Water Treatment plant is an Integral part of the Dialysis unit daily handling of the plant will be taught.
5. CRRT will be handled by the students themself with supervision by the Faculty Members.
6. CAPD will be handled by the students himself with supervision by the Faculty Members.

Elective Subjects:

1. Dialysis and Critical Care

1. Setting up of Hemodialysis Unit for Maintenance Hemodialysis.
2. Personnel for Hemodialysis Unit for Maintenance Hemodialysis.
3. Selection of Machine & Dialyser Unit for Maintenance Hemodialysis.
4. Water Treatment for Hemodialysis
5. Vascular Access
6. Priming, Connecting and Disconnecting Dialyser
7. Anticoagulation in Hemodialysis
8. Dialyser Reuse (Manual & Automated)
9. Dialysis Dose / Adequacy

10. Prevention of Infections in Hemodialysis Unit.

11. CVD Monitoring & Therapy

12. MBD Monitoring & Therapy

13. Hypertension & Therapy

14. Diabetes Monitoring & Therapy

15. Renal replacement in Intensive Care setting.

2. Diagnostic Modality in Nephrology:

1. Renal Biopsy Procedure.

2. Renal Biopsy Interpretation

3. USG and Kidney Disease

4. I.V.P / CT KUB in Nephrology.

5. Nuclear medicine in Nephrology.

6. Urine / Blood biochemistry in Nephrology

Clinical Case discussions related to ESRD Patients : This will be held every weekly and each student is expected to present & discuss 12 clinical cases in a year.

Ward rounds and postings :

taken every day attendance of which is compulsory. Dialysis unit rounds are The Student will be total of 5 machines which are s posted in Dialysis unit which has run exposed to for 24 hours. He will be Hemodialysis , peritoneal dialysis [Acute and CAPD], CRRT [Continuous Renal Replacement Therapy]
Rotation through General ward is compulsory so as to learn the care of end stage kidney disease patients.

OPD patient care:

Dialysis patients follow up regularly with their reports. Analysis of these reports and screening for long term complications of dialysis is carried out on OPD basis. Fistula care is an vital part of OPD management.

Each student will attend all the OPDs which include two General OPDs .

Procedures :

Following procedures will be demonstrated to each student which he will do himself as he is involved in patient care actively

1. Placement of [Acute] double lumen central Venus catheter for Hemodialysis. [Jugular subclaivan femoral]
2. Placement of permacath in Hemodialysis patient.
3. Hemodialysis Procedure
4. Acute peritoneal dialysis catheter placement
5. Peritoneal Dialysis procedure
6. Renal biopsy
7. Plasmapheresis
8. Continuous Ambulatory Peritoneal Dialysis
9. Continuous Renal Replacement Therapy
10. Evaluation of AV Fistula every monthly.

Project and paper presentation work*:*

Each student will be required to undertake a research project in a topic decided after consultation with guide. The project work will be submitted in the form of a thesis at the end of 12 months of the fellowship.

Attending conferences*:*

The candidate will attend the following

1. Yearly West Zone Chapter conferences of India Nephrology Society. Each student must attend one conference during his tenure.

2. Yearly Conference of Indian Society of Nephrology. Each student must attend one conference during his tenure.

G) Text books and reference books

Books

Diseases of the kidney and urinary tract : by Schrier

The Kidney : by Brenner

Oxford textbook of clinical Nephrology

Therapy in Nephrology and hypertension : by Brady Wilcox

Clinical dialysis by Nissenson

Comprehensive Clinical Nephrology 4th Edn. : By Feehally
Intensive Care Nephrology By Murray

Textbook of Peritoneal Dialysis By Nolph and Gokal's
Dialysis Therapy By Daugirdas.

Journals

Kidney international

Nephrology , dialysis and Transplantation

American journal of Kidney diseases

Journal of Indian Society of Nephrology.

Journal of Indian Society of Kidney Transplantation.

H) Scheme of examination in details : (Number of question papers, Number of marks to each question paper, Duration of question paper, practical examination etc.)

Pattern of Exam

- Examination will be conducted at end of semester of training at the college.
- Both theory and practical Examinations will be concluded within 15 days of the end of the semester.
- University will appoint an examination coordination committee (ECC) consisting of three teachers running Fellowship/certificate courses.
- One internal examiner and one external examiner will be appointed by the ECC to conduct the examinations.

Theory

One paper of three hours duration, 10 short notes to be attempted from 12 questions.Each question carry 10 marks each.

Practical

Each candidate will be examined by both examiners simultaneously for between 60 and 90 mins. This will cover a viva-voce and practical.

1) Long case: one case (100 marks)

Candidate will be allowed 30 minutes to examine the patient and review all the investigations. At the end of 30 minutes, the candidate will be examined for not more than 30 minutes for his/her ability to:

- Perform a bedside examination
- Interpret information from bedside monitors
- Systematic assessment of the patient's organ dysfunction
- Diagnose underlying disorders
- Interpret laboratory data with clinical correlation
- Discuss priorities in management

2) Short cases two cases (50 marks each)

Candidate will be allowed 20 minutes to examine each patient and review investigations. He/she will then be examined for not more than 15 minutes on his/her ability to:

Interpret information from physical signs and bedside monitors

- Discuss priorities in management
- Discuss drug treatment of specific problems specific to the patient
- Assess for common problems in the nephrology like

  - Fever
  - Hypotension
  - Hypoxaemia
  - Altered mental status
  - Acid-base disorders

3) Viva voce (100 marks)

This will cover following aspects:

- Research project submitted by candidate
- Pharmacotherapy
- Interpretation of laboratory tests
- Reading of Xrays, ECGs, CT scans, MRI scans
- Demonstration of bedside procedures on mannequin
- Legal and ethical issues
- Cardiopulmonary resuscitation

Award of Fellowship

Certificates will be awarded by the D Y Patil University after the results are sent to the University.

The University (with signature of the Registrar) will award the certificate.

List of Library books

SN	Name of the Book	Vol.	Ed.	Author
01	The Kidney (2008)	I	8th	Brenner & Rector
02	The Kidney (2008)	II	8th	Brenner & Rector
03	Pathology of the Kidney (2007)	I	6th	Heptinstalls
04	Pathology of the Kidney (2007)	II	6th	Heptinstalls
05	Disease of the Kidney & Urinary Tract (2007)	I	8th	Robert W. Schrier
06	Disease of the Kidney & Urinary Tract (2007)	II	8th	Robert W. Schrier
07	Disease of the Kidney & Urinary Tract (2007)	III	8th	Robert W. Schrier
08	Oxford Textbook of Clinical Nephrology (2005)	I	3rd	Davison, Cameron, Ponticelli
09	Oxford Textbook of Clinical Nephrology (2005)	II	3rd	Davison, Cameron, Ponticelli
10	Oxford Textbook of Clinical Nephrology (2005)	III	3rd	Davison, Cameron, Ponticelli
11	Clinical Medicine (2009)	-	7th	Kumar & Clark's
12	Evidence based Nephrology (2009)	I	-	Molony & Craig
13	Evidence based Nephrology (2009)	II	-	Molony & Craig
14	Living donor organ Transplantation (2008)	-	-	Gruessner & Benedetti
15	Kidney Transplantation (2008)	-	6th	Peter J. Morris
16	The Aging Kidney in Health & Disease (2008)	-	-	Juan F. Macias Nunez
17	Nutrition & Kidney Disease (2007)	-	-	Suzuki & Kimmel
18	Intensive Care in Nephrology (2006)	-	-	Patric T. Murray
19	The Kid. in Plasma cell Dyscrasias (2007)	153		Guillerma A. Herrera
20	Handbook of Dialysis Therapy (2008)	-	4th	Nissenson & Fine
21	Oxford Handbook of Nephrology & hypertension (2007)	-	-	Steddon, Ashman, Chesser & Cunningham
22	Nutrition in Kidney Disease (2008)	-	-	Laura D. Byham
23	Kidney Disease (2009)		5th	Arthur Greenberg
24	The Renal Drug Handbook (2009)		3rd	Caroline Ashley
25	The Neph. Board Review Course (Apex 2010) Course syllabus [approved by International society of Nephrology and Maharashtra Medical Council]	Day1	-	
26	The Neph. Board Review Course (Apex 2010) [approved by International society of Nephrology and Maharashtra Medical Council]	Day2		
27	The Neph. Board Review Course (Apex 2010) [approved by International society of Nephrology and Maharashtra Medical Council]	Day3		
28	Pathology of the kidney (2007)	I	6th	J. Charles Jennette
29	Principles of Internal Medicine 2008	I	17th	Harrisons
30	Principles of Internal Medicine (2008)	II	17th	Harrisons

31	Handbook of Nephrology & Hypertension (2009)		6th	Wilcox & Tisher
32	Comprehensive Clinical Nephrology (2007)	II	3rd	Feehally, Flogege
33	Primer on Kidney Diseases (2006)		4th Ed	Greenberg , cheung , Falk
34	Diabetic Kidney Disease (2011)			K.V.Dakshinamurthy
35	Critical Care Nephrology (2009)		2nd	Claudio Ronco
36	Chronic Kidney Disease, Dialysis & Transplantation (2010)	I	3rd	Jonathan Himnelfarb
37	Chronic Kidney Disease, Dialysis & Transplantation (2010)	II	3rd	Jonathan Himnelfarb
38	The Transplantation of Human Organ Act(2011)			
39	Renal & Electrolyte Disorders(2010)		7th	Robert W. Schrier
40	Bullets in Emergency medicine(2011)			
41	The Neph. Board Review Course (Apex 2011) Course syllabus [approved by International society of Nephrology and Maharashtra Medical Council]			
42	The Neph. Board Review Course (Apex 2011) Course syllabus [approved by International society of Nephrology and Maharashtra Medical Council]			
43	Comprehensive Clinical Nephrology		4th	Jurgen Floege &Feehally

Online important Nephrology & other related Journals

a. Kidney International

b. Am. J. Kidney Diseases.
c. BMC Nephrology
d. Nephrology , Dialysis & Transplantation
e. Am. J. Nephrology
f. Journal of American Society of Nephrology
g. International J. of Urology & Nephrology
h. Progress in Transplantation
i. Transplant International
j. Year in Renal Medicine
k. European J. of Clinical Nutrition
l. European J. of Nutrition
m. Intensive Care Medicine
n. Lupus
o. New England J. of Medicine

TITLE OF PROGRAM: Fellowship Course in Dialysis Medicine

Duration of Program: One year

Number of Semesters: 2 **Number of Papers:** 4

Core Papers: (60% weightage of marks)[List syllabus for each paper]

1. Hemodialysis, peritoneal dialysis, water treatment.

2. Case of ESRD patient, dialysis in Special situations

Elective Papers: (25% weightage of marks)

Discipline-related: (Allied specialty, Diagnostic modalities, Sub-specialty)

1. Dialysis and critical care

2. Diagnostic modalities in nephrology

Foundation Papers: (15% weightage of marks – only compulsory)

Compulsory: 1. Research Methodology

2. Medical Ethics

Value-based (any1): 1. ATCOM

2. Computer skill

3. Marathi

Semester wise Paper distribution (Core, Elective & foundations as may be applicable): 1:

1. Semester 1:

Core: Hemodialysis peritoneal dialysis, water treatment

Foundation (compulsory 1): Research Methodology/Medical Ethics

2. Semester 2:

Core: Case of ESRD patient, dialysis in Special situations.

Elective: Dialysis and critical care, Diagnostic modalities in nephrology

1 Semester = 450 Hours / 90 Days / minimum 15-18 weeks

	SEMESTER 1			**SEMESTER 2**		
	Hours	**Per Week**	**Credits**	**Hours**	**Per Week**	**Credits**
Core	45	2	3	45	2	3
Elective-Discipline	-	-	-	30	2	2
Elective-Generic	-	-	-	-	-	-
Foundation – Compulsory	45	2	3	-	-	-
Foundation – Value Based	10	1	-	10	1	-
Practicals	350	16	11	365	17	12

Assessment for credit courses (Absolute grading method):

Marks	93%	84%	77%	70%	63%	56%	49%
Letter grade	A+	A	B+	B	C+	C	F
Grade point	10	09	08	07	06	05	00