# SYLLABUS

# FOR COURSES AFFILIATED TO THE KERALA UNIVERSITY OF HEALTH SCIENCES

# THRISSUR - 680596

# SUPERSPECIALTY COURSE IN MEDICINE

# DM INFECTIOUS DISEASES

# Course Code - 528

**2021-22 onwards**

## 2. COURSE CONTENT

### 2.1 Title of Course:

**DM Infectious Diseases**

### 2.2 Objectives of course

**GOAL**

The Infectious Diseases training programme provides rigorous training and supervised experience by faculty with broad clinical and research expertise so that the postgraduate student acquires necessary skills and competencies as a specialist in infectious diseases. **Specific Objectives**:

The DM student is required to achieve the following competencies:

1. Ability to diagnose and manage all infectious diseases, adopting proper examination, modern methods of investigation and on an evidence-based practice.
2. Ability to integrate knowledge of global and local epidemiology, geographical habitats, reservoirs and modes of transmission of infections of public health importance and plan preventive measures.
3. Ability to practice advocacy related to public health issues in the occurrence and spread of infectious diseases with the idea of preventing / controlling epidemics.
4. Ability to be a team leader and community advisory on matters related to infectious diseases.
5. Ability to plan and execute infection control practices in hospital and community settings
6. Ability to coordinate and execute various research plans in existing and emerging infectious diseases.
7. Ability to provide continuity of care including counseling and palliative care
8. Ability to promote Team work & Good communication including confidentiality, empathy and social justice
9. Promote ethical principles in various roles

10. Ability to document the observations, organise data, conduct research and plan corrective steps

11. Ability to coordinate the interdisciplinary and social interactions

**At the end of the DM course in Infectious Diseases, the students should acquire the following competencies:**

1. Knowledge necessary to obtain a meticulous history on patients suspected of having an infection.
2. Knowledge necessary to perform a thorough physical examination of patients with infectious problems.
3. Knowledge necessary to generate a relevant and appropriate differential diagnosis compatible with a particular clinical syndrome and be able to elucidate typical microorganisms contributing to the same.
4. Knowledge to order appropriate tests.
5. Knowledge to recognize a possible need for specialist consultations for performance or interpretation of procedures and interpret the results.
6. Knowledge of the common infectious diseases with regard to clinical manifestations, etiologic agents and be able to generate a differential diagnosis.
7. Ability to develop an appropriate therapeutic approach depending on the patient's clinical condition and perform therapeutic procedures when appropriate to the patient's condition.
8. Knowledge of mechanism of action, indications, contra-indications, dosing schedule, efficacy, cost, side effects, and pharmacokinetics and pharmacodynamics of antimicrobials and biological products including monoclonal antibodies.
9. Ability to choose the right antimicrobial, rational combinations of antibiotics where required keeping in mind the clinical syndrome, tissue penetration and therapeutic drug monitoring where required.
10. Knowledge of drugs of choice for most microorganisms and chemoprophylaxis when required.
11. Knowledge of indications and contraindications for active and passive immunization of infectious diseases including comprehensive knowledge of the National Immunization Programme including travel related immunization.
12. Knowledge of global and local epidemiology, geographical habitats, reservoirs and modes of transmission of infections of public health importance and preventive measures.
13. Knowledge of reportable infectious diseases and proper documentation and procedures required for reporting them.

14. Knowledge of the basic principles of nosocomial infectious diseases in various institutional settings, especially catheter-associated urinary tract infections, nosocomial pneumonia, and sepsis associated with intravascular devices and therapy.
15. Knowledge for the purposes of referral and patient education, indications, success rates, and complications of common surgical procedures for infectious disease problems.

The post graduate student

1. Should be able to function as a part of a team, develop an attitude of cooperation with colleagues, and interact with the patient and the clinician or other colleagues to provide the best possible diagnosis or opinion.
2. Always adopt ethical principles and maintain proper etiquette in dealings with patients, relatives and other health personnel and to respect the rights of the patient including the right to information and second opinion.
3. Develop communication skills to word reports and professional opinion as well as to interact with patients, relatives, peers and paramedical staff, and for effective teaching.

**2.3 Medium of Instruction**:

The medium of instruction and examinations for the course shall be English

**2.4 Course outline**

The training programme may be arranged in the form of postings to different assignment / laboratories for the specified period as given below. The period of such postings is recommended to be for 36 months. During this period the student shall attain all necessary skills.

**Total Period of training: 36 months**

**Training schedule**

**Clinical Rotations**

i. First Year posting: in the parent department with resident duty (in turns)

on all days (depending on the number of candidates)

ii. Second year posting will include the following:

One month posting each in:

a. General Medicine

b. Pediatrics

c. Obstetrics & Gynaecology

d. Clinical Microbiology (including Lab. work)

e. Community Medicine (including Preventive Clinic)

f. Casualty (Emergency Medicine)

g. Immuno-suppression Unit (Transplant / Oncology)

h. Medicine ICU

i. Surgery ICU

j. PICU

k. NICU

l. RNTCP Unit*

m. ART Clinic*

n. STD Clinic*

* - only morning hours- rest of the day to be spent in the parent department

iii. Third Year posting: in the parent department with on call duty on all days

(in turn if feasible, depending on the number of candidates).

**Thesis**

The resident shall complete a minimum of one Institute ethics committee (IEC) approved thesis. Thesis synopsis shall be submitted to the University within the first 6 months after approval of IEC. Completed thesis has to be submitted to KUHS 6 months before the final theory examination and should be accepted by KUHS. This is a mandatory requirement for eligibility to appear for the examination.

The resident shall be trained in Good Laboratory Practices, Good Clinical Practices in relation to research

### 2.5 Duration

Every student seeking admission for DM Infectious Diseases shall pursue a regular course of study for 36 completed months including the period of examination in the concerned department under the guidance of a recognized post graduate teacher with experience in Infectious Diseases.

### 2.6 Syllabus:

Course contents:

The syllabus will include a study of infectious diseases of bacterial, viral, fungal and parasitic origin occurring in the adults and in the pediatric age group. The student must also have a practical knowledge of infections encountered in oncology, surgery, Obstetrics & Gynaecology, post-transplant patients, and in other specialties.

During the training programme, the post graduate student will have formal instruction, clinical experience or other opportunities to gain expertise in the etiology, pathogenesis, epidemiology, clinical presentation, differential diagnosis, management and prevention of the disorders pertaining to various pathogens and organ systems.

A detailed log book of at least 100 patients with different infectious diseases (minimum twenty of different systems) should be maintained. Grand round cases should also be recorded in log book.

The syllabus is based on (a) Syndromic or Systemic and (b) Organism based approach.

SYNDROMIC APPROACH TO INFECTIOUS DISEASES

1. Fever

- o Thermoregulation and pathogenesis
- o FUO and Acute febrile illnesses

- o Fever with rash, exanthematous fever of children

2. Upper respiratory tract infections

- o Sinusitis
- o Common cold
- o Pharyngitis, retropharyngeal and parapharyngeal infections
- o Laryngitis and croup
- o Ear infections including otitis and mastoiditis
- o Epiglottitis
- o Manifestations of different systemic infections in oral cavity, neck and head
- o Local infections of neck, oral cavity and head

3. Pleuro- pulmonary and bronchial infections

- o Infections associated with COPD and cystic fibrosis
- o Bronchiolitis
- o Acute bronchitis
- o Pneumonia (acute and chronic) including CAP and atypical pneumonia
- o Lung abscess
- o Pleural effusion and empyema

4. Urinary tract infections

5. Sepsis syndromes

6. Intra - abdominal infections

- o Peritonitis and intraperitoneal abscesses
- o Infections of liver and biliary system including liver abscess
- o Pancreatic infections
- o Splenic abscess
- o Acute and chronic appendicitis
- o Diverticulitis, typhlitis
- o Principles and syndromes of enteric infections including acute and chronic

diarrhea

o Enteric fever and other causes of abdominal symptoms with fever

o Malabsorption syndromes

o Food poisoning

o Lower abdominal pain syndromes including Pelvic inflammatory disease and prostatitis

o H. pylori infection

7. Cardiovascular infections

o Infections of endocardium, prosthetic valve, non- valvular cardiovascular devices

o Myocarditis, pericarditis

o Mediastinitis

8. CNS infections

o Approach to a patient with CNS infections

o Meningitis: acute and chronic

o CSF shunt infection

o Encephalitis

o Infections causing Brain SOLs and abscesses

o Infections of dural spaces and brain sinuses

9. Osteomyelitis, infections of native joint and prostheses

10. Syndromic approach to STIs

11. Eye infections including endophthalmitis, uveitis and chorioretinitis

12. Multisystem sepsis syndromes, septic shock and disseminated infections

13. Pyomyositis, skin and soft tissue infections

14. Nosocomial Infections or Medical Device Related Infections

o Organization for infection control

o Disinfection, sterilization, disposal of hospital waste

o Isolation and quarantine

o Nosocomial UTI (catheter-associated urinary tract infection - CAUTI)

o Nosocomial Pneumonia (health care—associated pneumonia – HCAP; Ventilator-associated pneumonia - VAP)

o Catheter related infections (Central Line-Associated Bloodstream Infection-CLABSI)

o Viral hepatitis & other transfusion- transplantation transmitted infections

15. Infection in Special Hosts

o Immunocompromised (congenital and acquired)

o Management of infections in cancer patients including febrile neutropenia

o Infections in transplant recipients: solid organ, hematopoietic stem cell

o Spinal cord injury

o Geriatric population including infections in long term care facilities

o Infection in asplenic hosts

o Infection in IDU (Infectious Diseases Unit)

o Surgical and trauma related infection: Bite, Burn, post operative fever

ETIOLOGICAL AGENTS OF INFECTIOUS DISEASES

1. Viral Diseases

•Arbo-viral illnesses including Dengue, Yellow fever, KFD, Chikungunya, Hantavirus, WNV, JE, Tick borne encephalitis, Syndromes associated with Arboviral infections; Herpes viridae and its infections (HSV, CMV, EBV, HSV6&7, KSAV, VZV), Poxviridae

• Hepatitis causing viruses including Hepatitis E

•Corona virus and SARS

•Mumps and measles viruses

•Rhabdoviruses

•Ebola and Marburg virus and other viral hemorrhagic fevers

•Adenovirus

•Papillomavirus

• JC, BK other polyoma viruses

• Influenza and parainfluenza

•Zoonotic paramyxoviruses like Nipah, Hendra

•RSV

•Polio, Coxsackie, Echo, Enteroviruses

•HTLV 1 & 2

•HIV: history, epidemiology, virology, immunology, disease spectrum including pulmonary, gastroenterological and neurological manifestations of HIV-OI, malignancy, treatment guidelines including antiretrovirals, drug toxicity, Drug resistance, prevention, future planning

2. Prion Diseases Creutzfeldt Jacob, Kuru, Bovine spongiform encephalitis

3. Bacterial Diseases

• Gram positive organisms; Gram negative organisms

• Anaerobic infections

• Mycobacteria: Tuberculosis: primary, secondary, pulmonary, extrapulmonary (as per anatomical structures), MDR and XDR TB

• Leprosy, Non-Tuberculous Mycobacteria

• Brucellosis, Chlamydial diseases, Mycoplasma

• Rickettsial diseases

• Syphilis, Leptospirosis other spirochetes, Nocardia, Actinomycosis

4. Mycoses

• Superficial mycoses, Subcutaneous mycoses

• Deep mycoses including endemic systemic mycoses

5. Protozoal diseases

- Entamoeba, Free living amoeba, Malaria, Babesia, Leishmaniasis, Toxoplasmosis, Trypanosomiasis, Giardiasis, Trichomoniasis, Cryptosporidium and other HIV associated protozoas

6. Helminthic infections:

Geohelminths, Tissue and blood nematodes, Cestodes, Trematodes

7. Ectoparasitic diseases:

Lice (pediculosis), scabies, myasis, Mites including Chiggers, Ticks

8. Diseases associated with toxic algae: Prototheca

GENERAL

- o Immunisation: Pediatric age group, adult, travelers
- o Travel Medicine
- o Bioterrorism
- o Outbreak Investigation in Hospital and Community
- o National Health Programmes Related to Communicable Diseases
- o Pharmacotherapeutics in Infectious Diseases
- o Non-infectious mimics of Infectious Diseases
- o Neglected Tropical Diseases
- o Critical Care Syndromes and Exotic infections

The student will undergo clinical rotations during the three-year programme (as given in the section dealing with Teaching and Learning Methods).The main features of these rotations will involve history taking and examination of the patients, recommend relevant investigations, reviewing investigation reports and following up with microbiology, formulating a differential diagnosis and a therapeutic plan, discussing the case with the primary consultant and the core faculty for the programme. Identification of critical questions related to the case, reading the topic from a standard ID textbook, literature search to retrieve comprehensive review including epidemiology, microbiology, pathology, clinical manifestations, investigative approach, treatment modalities,

prognosis and preventive strategies, retrieve practice guidelines (Indian and international), systematic reviews (Cochrane review) if any, review of controversies and identification of research needs of the specific state will also be required.

**2.7 Total number of hours**

As given in clause 2.10 of the curriculum

**2.8 Branches if any with definition**

As given in clause 2.10 of the curriculum

**2.9 Teaching Learning Methods**

The training program will aim to give the candidate a sound training in the diagnosis of infectious diseases management. During the period of training they shall take part in all the activities of the department and other duties assigned to them by the Head of the Department.

General principles

Acquisition of practical competencies being the keystone of PG medical education, PG training should be skills oriented. Learning in PG programme should be essentially self-directed and primarily emanating from clinical and academic work. The formal sessions are meant to supplement this core effort.

a) Journal Club/Journal Scan: 1 hour duration - Paper presentation/discussion - once per

week.

b) Seminar: One seminar every week of one hour duration

c) Lecture/discussion: Lectures on newer topics by faculty, in place of seminar as per need.

d) Infectious Diseases Case Presentations with input from Microbiology, Virology, Parasitology and various related specialties

e) Infectious Disease Seminars/discussions: Post graduate students are expected to work up one long case or two short cases and present the same to a faculty member and discuss the management.

f) Morbidity and Mortality Conference once a month

g) Emergency situation: Emergency duty by rotation among the post graduates with faculty cover.

h) Ward rounds: DM students should take history, conduct examination, clinically evaluate and manage inpatients admitted to wards. Ward rounds should be conducted by faculty for appropriate patient care and teaching. This should also cover calls from other specialties and emergency.

i) Combined Round/Grand Round: These exercises are to be done once a week or twice a month involving presentation of unusual or difficult cases.

k) Clinical teaching: In outpatient, ward rounds, emergency and ICU, the post graduate students shall be required to participate in the teaching and training programme of undergraduate students, interns, junior residents and nurses.

l) The Department should encourage e-learning activities.

j) A post graduate student of a post graduate degree course in broad specialities/super specialities would be required to present one poster presentation, to read one paper at a national/state conference and to present one research paper which should be published/accepted for publication/sent for publication during the period of his post graduate studies so as to make him eligible to appear at the postgraduate degree examination.

**Teaching strategies**

Clinical work:

• Rotation through various work stations for direct observation and hands-on learning

• Rounds in the laboratory trouble-shooting problems and addressing clinical correlation.

• Reading of textbook sources regarding background information

• Slide lectures addressing specific microscopy topics.

• HIV ELISA detection, CD4 testing, viral load in PCR lab (during lab posting)

Hospital Epidemiology:

• Discussion sessions to review readings and basic concepts in hospital epidemiology

• Regular schedule of meetings: Infectious Diseases (ID) Seminar, Infection Control (IC) Staff and Committee meetings, Drug Utilization

• Special project assignments, evaluating new or ongoing problems/nosocomial infections.

Outbreak investigation training

• One report on hospital infection epidemiology during the course.

Infectious Disease Epidemiology

• Environmental factors in Infectious Diseases

• Emerging and re-emerging diseases like dengue, Ebola. Epidemic alert: Notification and reportable diseases, Recognition of Bioterrorism

• Control strategies (levels of prevention and modes of intervention, source reduction, vaccination, integrated vector control and diagnosis and treatment) especially with regard to malaria, kala azar, scrub typhus)

• International instruments (International Health Regulations and international disease surveillance) and WHO regulations and guidelines

• Research in Infectious Diseases

• Knowledge of the Geo-sentinel network and Geographical Information mapping of various diseases

Prevention of Hospital acquired Infections (Infection Control)

• Epidemiology and Surveillance

• Cluster investigation

• Transmission and control of nosocomial infection

• Disinfection and sterilization

• Isolation system

• Regulatory compliance All candidates shall work as full time residents during the period of training, attending not less than 80% of the training, and given full responsibility, assignments and participation in all facets of the educational process.

Every institution shall set up an Academic cell or a Curriculum committee, under the chairmanship of a senior faculty member, which shall plan the details of the training programme in consultation with the other departments and also co-ordinate and monitor the implementation of these training programs.

The training programme shall be updated and revised as and when required. The training programme shall be exhibited and strictly followed, to enable the examiners to determine the training undergone and also the inspectors of the National Medical Commission to assess the same at the time of inspection.

A log book will be maintained by each student for each day's work mentioning the details and the test done including the patient and lab details by herself/himself with interpretation and results. The logbook shall be checked and assessed by the faculty members regularly.

**Out station training**

Outstation training may be given if required. It should not exceed 2 months in an year. The duration, center and other details will be at the discretion of the Head of the department.

**Teaching**

All D.M students should take part in the teaching of the post graduate degree students of related subjects, paramedical students and allied health science students and trainees posted in the department.

## 2.10 Content of each subject in each year

The program has been designed to give the resident comprehensive training in Infectious Diseases and Clinical Microbiology, Epidemiology and Critical care to enable them to follow a subsequent career pathway in either academic or community related work.

The curriculum of three years in training in DM Infectious Diseases

1. Theoretical knowledge
2. Practical and clinical skills
3. Writing Thesis/Research articles
4. Attitudes including communication skills.
5. Training in Research Methodology, Medical Ethics and Medico legal aspects

Year wise training plan described above (2.4)

**2.11 No: of hours per subject**

As given in clause 2.4 of the curriculum

**2.12 Practical training**

As given in clause 2.4 of the curriculum

**2.13 Records**

As given in clause 2.4 of the curriculum

**2.14 Dissertations: As per the Dissertation Regulations of KUHS**

Thesis is an absolute requirement for D.M course and the candidate has to register the thesis synopsis in the University through proper channel within 6 months of admission. Thesis has to be submitted to the University for Evaluation at least 6 months prior to the conduct of final examination. Modifications and resubmission should be done before writing the examination. Even if the guide is transferred / retired, the thesis has to be continued under his/her guidance or entrust to another guide in case the original person is not willing to continue. In extra ordinary situations change of guide and change of thesis topic is permissible with prior permission from the University. Only after accepting the thesis, the candidate will be eligible for writing the examination.

**Evaluation of Thesis**

The thesis shall be evaluated by a minimum of three experts; one internal and two external experts, who shall not be the examiners for the Theory and Practical examination of the concerned candidates and it may be accepted/ accepted with modifications/rejected. Only on the acceptance of the thesis by two experts out of three, the candidate shall be permitted to appear for the University examination. If the thesis is accepted with modifications by at least two experts, it shall be resubmitted with suggested modifications along with prescribed fees within the prescribed time stipulated by the University from time to time and it shall be reevaluated by the University. If thesis is rejected by two experts, the candidate will lose the first chance for appearing in the University examination and has to redo a fresh thesis for further evaluation.

**2.15 Specialty training, if any**

As given in clause 2.4 of the curriculum

**2.16 Project work to be done, if any**

Each student is also encouraged to do small research projects and they are given permission to publish their study if it is found to be good.

**2.17 Any other requirements**

- Should have attended minimum of two International/ National/ Zonal/ State conferences or workshops concerned with the area of specialization.
- Should have presented at least one paper/poster in International/ National/ conferences concerned with the area of specialization.
- Should have at least one publication in a peer reviewed journal and at least one other research papers or original works submitted for publication in peer reviewed journals (as per NMC norms).

**2.18 Prescribed/Recommended textbooks for each subject**

As prescribed by the Head of the department

**2.19 Reference books**

As prescribed by the Head of the department

**2.20 Journals**

Minimum of 5 standard International journals in Infectious Diseases along with Back Issues

Access to all available Indian journals in Internal Medicine, Pulmonology, Paediatrics, Oncology is desired.

Minimum of 5 standard national Journals

**Logbook**

A log book will be maintained by each student for each day's work mentioning the work details and the activity done, including the patient and lab details, by herself/himself with interpretation and results. All other activities including journal review/seminars/topic presentation/ teaching etc also should be recorded in the logbook. The logbook shall be checked and

assessed by the faculty members regularly (at least quarterly). Log book will be evaluated during the University examination by all the four examiners with a maximum total mark of 20 in the viva component.

## 3. EXAMINATIONS

### 3.1 FORMATIVE ASSESSMENT

**Formative assessment should be continual and should assess medical knowledge, patient care, procedural & academic skills, interpersonal skills, professionalism, self directed learning and ability to practice in the system.**

**Periodic Evaluation**:

Candidates will be evaluated continuously for their performance in all areas such as clinical and investigative work, case presentations, seminars, journal clubs, procedures etc. Additional periodic assessment will include theory and practical assessment mimicking the final examination should be conducted every 6 months. Such an evaluation will help assessing the progress of the trainees and the quality of the training programme. Evaluation will be communicated to trainees and their feedback would be taken into consideration for modifications in training programme.

Internal Assessment should be frequent, cover all domains of learning and used to provide feedback to improve learning; it should also cover professionalism and communication skills.

**Quarterly assessment during the DM training should be based on:**

**1. Journal based / recent advances learning**
**2. Patient based /Laboratory or Skill based learning**
**3. Self directed learning and teaching**
**4. Departmental and interdepartmental learning activity**
**5. External and Outreach Activities / CMEs**18

**The student to be assessed periodically as per categories listed in Postgraduate Student Appraisal form (Annexures).**

### 3.2 Eligibility to appear for exams

The examinations shall be organized on the basis of marking system to evaluate and certify candidate's level of knowledge, skill and competence at the end of the training. A candidate should appear for all the examinations and obtaining a minimum aggregate of 50% marks in theory part and practical part (Practical & Viva) separately shall be mandatory for passing the whole examination.

**Eligibility for appearing in final examination**

i. A minimum of 80% attendance is mandatory during each year of the course separately.

ii. Successful submission of completed Logbook.

iii. Submission of Dissertation and its approval by the University.

iv. Should have attended minimum of two International/ National/ Zonal/State conferences or workshops concerned with the area of specialization.

v. Should have presented at least one paper/poster in International/ National/ conferences concerned with the area of specialization.

vi. Should have at least one publication in a peer reviewed journal and at least one other research papers or original works submitted for publication in peer reviewed journals (as per NMC norms).

### 3.3 Schedule of Regular/Supplementary exams

There shall be two university examinations in a year, one regular and one supplementary examination, with a usual gap of six months.

### 3.4 Scheme of examination showing maximum marks and minimum marks

There shall be theory, and practical examination including viva voce at the end of the three year course. Theory examination shall consist of four papers, each of 3 hours duration, including one on recent advances. Each paper will carry a maximum of 100 marks. Each question paper shall consist of one essay question of 20 marks and 8 short essays of 10 marks each. There shall be multiple evaluations of theory papers by two internal examiners and two external examiners and the average mark for each paper is taken as the final marks.

| Sl no | Subject | Theory | Theory group | Practical | | Practical group | TOTAL |
|---|---|---|---|---|---|---|---|
| | | University | | University | Viva | | |

| | | Max | Min | Max | Min | Max | Min | Max | Min | Max | Min | Max | Min |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Paper I | 100 | - | 400 | 200 | 300 | - | 100 | - | 400 | 200 | 800 | 400 |
| 2 | Paper II | 100 | - | | | | | | | | | | |
| 3 | Paper III | 100 | - | | | | | | | | | | |
| 4 | Paper IV | 100 | - | | | | | | | | | | |

Paper I: Basic Sciences as applied to Infectious Diseases
Paper II: Clinical Microbiology including Bacteriology, Parasitology, Virology & Mycology and Pharmacology
Paper III: Community acquired infections including neglected tropical diseases
Paper IV: Recent Advances and Special Populations

**3.5 Papers in each year**

Not applicable

**3.6 Details of theory examination**

As per clause 3.4

### 3.7 Model question paper for each subject with question paper pattern

**DM Infectious Diseases Degree examination**

**(Model question paper)**

**Paper I: Basic Sciences as applied to Infectious Diseases**

**Time: 3 hours** **Max marks: 100**

**Answer all questions**

**Draw diagrams wherever necessary**

**Essay:** **(20)**

1. Discuss in detail markers of sepsis and their clinical implications

**Short essays:** **(8x10=80)**

2. Enumerate the newer antifungals. Discuss the clinical uses and side effects.
3. RNA Oncogenic viruses
4. List the neurotropic parasites. Discuss the diagnostic approach of any one of them.
5. Describe the non culture methods for identification of antimicrobial resistance
6. Describe the bio-containment levels in diagnostic microbiology lab.
7. Discuss the advantages and disadvantages of automation in microbiology lab.
8. Describe the development of variants in viral infections and relevance for vaccine discovery

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**DM Infectious Diseases Degree examination**

**(Model question paper)**

**Paper II: Clinical Microbiology including Bacteriology, Parasitology, Virology & Mycology and Pharmacology**

**Time: 3 hours** **Max marks: 100**

**Answer all questions**

**Draw diagrams wherever necessary**

**Essay:** **(20)**

1. Describe the diagnostic and monitoring strategies for diagnosis of HIV disease and treatment

**Short essays:** **(8x10=80)**

1. Discuss strategies for drug discovery as applicable to Covid 19
2. Describe the epidemiology of Leptospirosis in different parts of the world
3. Discuss the development of vaccines for malaria
4. Applications of Imaging in cardiac infections
5. Describe the uses of antifibrotics in post infective lung lesions
6. Enumerate the organisms causing AES in India. Describe the diagnostic strategy in one of them
7. Discuss the latest modifications in National Tuberculosis Eradication Program
8. Describe Antibiotic usage modifications in Renal Diseases

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**DM Infectious Diseases Degree examination**

**(Model question paper)**

**Paper III: Community acquired infections including neglected tropical diseases**

**Time: 3 hours** **Max marks: 100**

**Answer all questions**

**Draw diagrams wherever necessary**

**Essay:** **(20)**

1. Describe the Pathogenesis, Clinical features, Treatment and Prevention of Tetanus

**Short essays:** **(8x10=80)**

1. Enumerate the common causes of Gram Negative Sepsis in elderly persons
2. Discuss travel associated chemoprophylaxis against infectious diseases
3. Describe the infection control practices for suspected Ebola virus outbreak
4. Discuss diagnosis and management of urosepsis in elderly males
5. Discuss the principles in establishment of Post Covid Clinic in a remote community
6. Enumerate the steps to be adopted in case of a cholera outbreak in a metropolis
7. Discuss the diagnosis and management of toxoplasma infection in women with bad obstetric history
8. Discuss the issues related to vaccine hesitancy

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**DM Infectious Diseases Degree examination**

**(Model question paper)**

**Paper IV: Recent Advances and Special Populations**

**Time: 3 hours** **Max marks: 100**

**Answer all questions**

**Draw diagrams wherever necessary**

**Essay:** **(20)**

1. Discuss the changes in latest HIV Management guidelines

**Short essays:** **(8x10=80)**

1. Discuss the Role of interferons in management of Chronic viral diseases
2. List the organisms causing Immune Reactivation Syndrome and diagnostic tests
3. Discuss the tests used for HIV drug resistance
4. Discuss the mechanisms of vaccine development against re-emerging infectious diseases
5. Discuss the role of microbiota in human disease
6. Discuss the role of Artificial intelligence in infectious diseases
7. Discuss the point of care testing in bacterial diseases
8. Describe the mechanisms of immunodeficiency following cancer therapy.

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### 3.8 Details of practical examination

The practical examination shall assess the basic sciences and practical skills as are relevant to the subject. Examination should be comprehensive and cover all different aspects.

Practical /Clinical examination consisting of at least one long case, three short cases and viva voce. OSCE/ OSPE may be included to the maximum extent of 20%.

Passing percentage shall be 50%.

### 3.9 Number of examiners needed (Internal & External) and their qualifications

**Examiners**

1. All Examiners shall be recognised super speciality teachers as per NMC norms. There shall be two internal examiners (from affiliated colleges of KUHS) and two external examiners (exclusively from outside the state). In departments where there are more than 2 professors, the head of the department shall preferably be a constant member of the board of examiners, and the other professors shall be posted as internal examiners on rotation basis.
2. Under exceptional circumstances, examinations may be held with 3 (three) examiners provided at least two of them are external examiners, subject to the ratification of the pass board.

### 3.10 Details of viva

Viva voce: 80 marks

Log book: 20 marks

**TOTAL: 100 marks**

## 4. INTERNSHIP

Not applicable for Medical Super specialty degree courses

## 5 ANNEXURES

### 5.1 Check Lists for Monitoring: Log Book, Seminar Assessment etc.

### ANNEXURE 1

### CHECK LIST 1: EVALUATION OF SEMINAR PESENTATION

**Name of the Trainee:** **Date:**
**Name of the Faculty:**

| Sl no | Items for observation | Poor | Below average | Average | Good | Very good |
|---|---|---|---|---|---|---|
| | | 0 | 1 | 2 | 3 | 4 |
| 1 | Completeness of presentation | | | | | |
| 2 | Clarity of presentation | | | | | |
| 3 | Understanding of the subject | | | | | |
| 4 | Whether relevant publications reviewed | | | | | |
| 5 | Whether cross references reviewed | | | | | |
| 6 | Ability to answer questions | | | | | |
| 7 | Time scheduling | | | | | |
| 8 | Use of appropriate audio-visual aids | | | | | |
| 9 | Overall performance | | | | | |
| 10 | Any other observation | | | | | |
| 11 | Total score | | | | | |

**ANNEXURE 2**

**CHECK LIST 2: EVALUATION OF JOURNAL ARTICLE PESENTATION**

**Name of the Trainee:** **Date:**
**Name of the Faculty:**

| Sl no | Items for observation | Poor | Below average | Average | Good | Very good |
|---|---|---|---|---|---|---|
| | | 0 | 1 | 2 | 3 | 4 |
| 1 | Article chosen | | | | | |
| 2 | Understanding of the objectives and scope of the paper | | | | | |
| 3 | Ability to discuss the paper | | | | | |
| 4 | Clarity of presentation | | | | | |
| 5 | Whether relevant publications reviewed | | | | | |
| 6 | Whether cross references reviewed | | | | | |
| 7 | Ability to answer questions | | | | | |
| 8 | Use of appropriate audio-visual aids | | | | | |
| 9 | Overall performance | | | | | |
| 10 | Any other observation | | | | | |
| 11 | Total score | | | | | |

**ANNEXURE 3**

**CHECK LIST 3: EVALUATION OF TEACHING SKILL**

**Name of the Trainee:** **Date:**
**Name of the Faculty:**

| Sl no | Items for observation | Poor | Below average | Average | Good | Very good |
|---|---|---|---|---|---|---|
| | | 0 | 1 | 2 | 3 | 4 |
| 1 | The introduction | | | | | |
| 2 | Evokes audience interest in the topic | | | | | |
| 3 | The sequence of ideas | | | | | |
| 4 | Speaking style | | | | | |
| 5 | Use of practical examples / illustrations | | | | | |
| 6 | Attempt for audience participation | | | | | |
| 7 | Summary of main points at the end | | | | | |
| 8 | Ask questions | | | | | |
| 9 | Answer questions asked by the audience | | | | | |
| 10 | Rapport with the audience | | | | | |
| 11 | Use of appropriate audio-visual aids | | | | | |
| 12 | Overall effectiveness of the talk | | | | | |
| 13 | Any other observation | | | | | |
| 14 | Total score | | | | | |

**ANNEXURE 4**

**CHECK LIST 4: EVALUATION OF DISSERTATION PRESENTATION**

**Name of the Trainee:** **Date:**
**Name of the Faculty:**

| Sl no | Items for observation | Poor | Below average | Average | Good | Very good |
|---|---|---|---|---|---|---|
| | | 0 | 1 | 2 | 3 | 4 |
| 1 | Interest shown in selecting the topic | | | | | |
| 2 | Ability to discuss the topic | | | | | |
| 3 | Whether relevant publications reviewed | | | | | |
| 4 | Whether cross references reviewed | | | | | |
| 5 | Discussion with the guide and other faculty | | | | | |
| 6 | Quality of the protocol | | | | | |
| 7 | Preparation of the proforma | | | | | |
| 8 | Any other observation | | | | | |
| 9 | Total score | | | | | |

**ANNEXURE 5**

**CHECK LIST 5: CONTINUOUS EVALUATION OF DISSERTATION WORK**

**Name of the Trainee:** **Date:**
**Name of the Faculty:**

| Sl no | Items for observation | Poor | Below average | Average | Good | Very good |
|---|---|---|---|---|---|---|
| | | 0 | 1 | 2 | 3 | 4 |
| 1 | Periodic consultation with the guide / co-guide | | | | | |
| 2 | Regular collection of cases | | | | | |
| 3 | Depth of analysis/ Discussion | | | | | |
| 4 | Departmental presentation of the dissertation | | | | | |
| 5 | Quality of the protocol | | | | | |
| 6 | Quality of the final output | | | | | |
| 7 | Any other observation | | | | | |
| 8 | Total score | | | | | |

**ANNEXURE 6**

**CHECK LIST 6: OVERALL ASSESSMENT SHEET**

**Name of the Trainee:** **Date:**
**Name of the Faculty:**

| Checklist no | Particulars | Poor | Below average | Average | Good | Very good |
|---|---|---|---|---|---|---|
| | | 0 | 1 | 2 | 3 | 4 |
| 1 | Evaluation of seminar presentation | | | | | |
| 2 | Evaluation of journal article presentation | | | | | |
| 3 | Evaluation of teaching skills | | | | | |
| 4 | Evaluation of dissertation presentation | | | | | |
| 5 | Evaluation of dissertation work | | | | | |
| 6 | Total score | | | | | |

**ANNEXURE 7**

**SEMINARS PRESENTED**

**Name of the trainee:**

| Date | Topic | Signature of trainee | Signature of the faculty |
|---|---|---|---|
| | | | |
| | | | |
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**ANNEXURE 8**

**JOURNAL ARTICLES PRESENTED**

**Name of the trainee:**

| Date | Title of the article | Signature of trainee | Signature of the faculty |
|---|---|---|---|
| | | | |
| | | | |
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**ANNEXURE 9**

**PROCEDURES PERFORMED**

**Name of the trainee:**

| Date | Procedures performed | Signature of trainee | Signature of the faculty |
|---|---|---|---|
| | | | |
| | | | |
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**ANNEXURE 10**

**CONFERENCES / CMEs ATTENDED**

**Name of the trainee:**

| Date | Conference / CME attended | Signature of trainee | Signature of the faculty |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
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**ANNEXURE 11**

**PRESENTATIONS IN CONFERENCES / CMEs**

**Name of the trainee:**

| Date | Presentations | Signature of trainee | Signature of the faculty |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

**ANNEXURE 12**

**PUBLICATIONS IN INDEXED JOURNALS**

**Name of the trainee:**

| Title of the article | Name of the journal | Signature of trainee | Signature of the faculty |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
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| | | | |

**FINAL EXAMINATION ELIGIBILITY FORM**

(To be filled up the candidate)

Name of the candidate:

Date of joining:

Registration number of University:

Course and Institution:

Eligibility criteria:

| Sl no | Parameter | Details | Remarks |
|---|---|---|---|
| 1 | Attendance | First year (minimum 80%)<br>Second year (minimum 80%)<br>Third year (minimum 80%) | |
| 2 | Thesis | Approved / Not approved by the University | |
| 3 | Logbook | Successfully completed and submitted | |
| 4 | Conferences attended | Number and category | |
| 5 | Presentations in conferences | Number of presentations | |
| 6 | Publications | Number published<br>Number submitted | |

All the information provided above are true to the best of my knowledge and if found contrary, I am clearly aware that strict disciplinary actions will be initiated including debarring from examination.

Place: Signature of the candidate

Date: Name of the candidate

Countersigned by the Head of Department

**APPROVAL OF HEAD OF THE DEPARTMENT**

I , Dr……, herewith approve that the above candidate is eligible to appear for the final examination as per the documentary evidences provided and best of the knowledge and documents of the department.

Date Signature

Place Name and designation