

CURRICULUM
FOR 2 YEARS DIPLOMA PROGRAMME IN
TUBERCULOSIS & CHEST DISEASES
(DTCD)



2023-24

Nishtar Medical University, Multan
PAKISTAN



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FOREWORD:

Nishtar Medical University Multan was inaugurated by the President of Pakistan on the with the vision to explicitly address academic and research needs in the field of health sciences and allied disciplines and to uplift their existing level to bring them on a par with the international standards.

The mission of the University is to develop an intellectual nexus to provide excellence and innovation in medical education and research in order to;

- Impart knowledge and skills to health care providers to enhance their competence in providing community oriented and multi-disciplinary patient-centered care
- Train and produce researchers and specialists in basic and clinical medical sciences
- Establish and maintain continuing professional development programs for the faculty
- Provide trained professionals and scientists/researchers for the field of Electro Medical/Bio -Medical disciplines
- Assure quality in health education and research at all levels

A university is the zenith of knowledge that imparts quality education and awards degrees for extensive educational attainments in various disciplines with attendant advancement for the development of intellectual community. Protection of traditional knowledge, making exploration about it and obtaining deep understanding of modern technology and research techniques are some of the responsibilities of any university.

NMU Multan is running a number of courses in the field of health sciences in Punjab. The list extends from undergraduate level courses up to the doctorate level both in basic, clinical and allied health sciences.

Since its inception, certain vital tasks were taken into serious consideration by NMU. For instance, curricula development and their up-gradation were among the most important ones besides introduction of contemporary educational programs.

NMU Multan has revised and finalized curricula for undergraduate Medical/Dental Education, BSc Nursing, and Allied Health Sciences.

In keeping with its commitment for further improvement in the standard of medical education, NMU has taken an initiative to modify structured training programs.

I do not believe in selling an old product in a new packing with a fresh label on it, just to do the job. Original products with actual outcomes for the society must be guaranteed. Being the Vice Chancellor of a public sector health university, I believe, it is my duty to remain vigilant and committed to the cause of improvement of the conventional medical and allied health sciences' curricula on regular basis. This will help produce technically sound professionals with advanced knowledge and skills.

Presently, NMU has designed and facilitated curriculum development committees for six clinical disciplines namely: DTCD, DOMS, DCH, DCP, DGO and DA.

This document precisely briefs the details of updated curriculum for Diploma in Tuberculosis and Chest Diseases (DTCD) as prepared by the Experts' Committee.

I am pleased to acknowledge the efforts made by **Prof. Rashad Qamar Rao**, the Department of Medical Education NMU and the members of the committee for DTCD consisting of: **Prof. Dr. Salman Ayyaz** NMU, **Assistant Professor Dr. Shakeel Ahmad Khan** NMU. The contributions made by them will go a long way in the education and training of doctors in this field.

I hope, the revised course will be able to meet the needs of latest trends in Tuberculosis and Chest Diseases and will certainly produce competent mid-level specialists in the field, which is the main objective of this program.

Prof. Dr. Rana Altaf

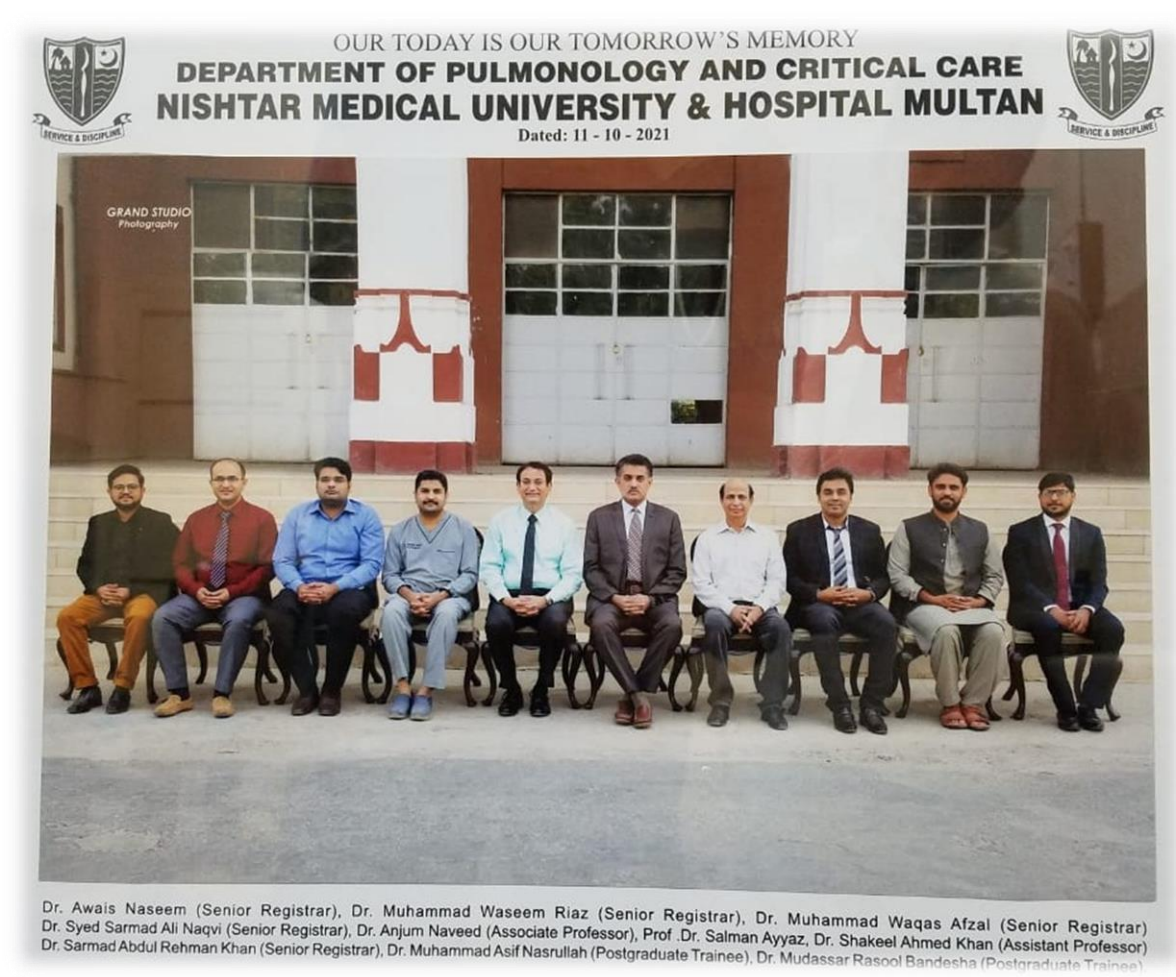
FCPS Anaesthesia

Vice Chancellor NMU Multan



Introduction:

Pulmonology department of Nishtar Medical University Multan has 40 beds including 4 dedicated ICU beds. We have daily OPD catering 200+ patients from all over south Punjab, Sindh, Baluchistan and few parts of KPK. The department is recognized for undergraduate, post graduate and nursing training by PMC. The department is equipped with all forms of chest procedures, both diagnostic or therapeutic like narrow or wide bore chest drains, diagnostic tap, image guided Trucut biopsy, pleural biopsy. Bronchoscopy, pleuroscopy, Sputum sampling, DOTS, MDR TB, Chest X ray, CT Scan, USG, NIV & Invasive mechanical ventilation. The department has served the nation efficiently during Covid-19 pandemic under the kind supervision of Principal Prof. Dr. Iftikhar Hussain Khan and its services were recognized and rewarded by Governor of Punjab Mr. Ghulam Sarwar. DTCD was started in early nineties, during that period it was awarded by BZU, Multan and was 1-year post graduate program. In 2008 DTCD had shifted towards UHS as 2-year program. Now in 2022 we are starting it under Banner of Nishtar Medical University as 2-year Post-Graduate Diploma.



AIMS AND OBJECTIVES OF THE COURSE

AIM

The aim of 2 years diploma program in Tuberculosis and Chest Diseases is to equip medical graduates with relevant professional knowledge, skills and ethical values to enable them to apply their acquired expertise at primary and secondary health care organizations as non-academic consultants.

OBJECTIVES

At the end of the training in DTCD, a trainee doctor should be able to:

1. Take a comprehensive and pertinent history of a patient presenting with respiratory tract problems
2. Perform detailed physical examination in a rational sequence that is both technically correct as well as methodical
3. Elicit physical signs without discomfort to the patient
4. Evaluate patients in the setting of outpatient's department, hospital wards and emergency
5. Order a set of relevant investigations considering availability, diagnostic yield, cost-effectiveness, side effects, and implications for management
6. Comprehend Community Indicators related to individual's health
7. Aware of and can apply national and international guidelines for treatment and assessment
8. Counsel patients and relatives in patient's preferred language in elective and emergency situations in keeping principles of good communication skills, empathy and empowerment to patients
9. Exhibit emotional maturity and stability, integrity, ethical values and professional approach, sense of responsibility in day-to-day professional activities
10. Take proper informed consent for physical examination and ensure confidentiality and appropriate environment for physical examination
11. Act as an independent specialist at community level/Tehsil and District Headquarter hospital
12. Show initiative and become life long self-directed learners tapping on resources including clinical material, faculty, internet and on-line learning program and library

SPECIFIC LEARNING OUTCOMES

Following competencies will be expected from a student completing 2 years' course in DTCD, including clinical and preventive chest medicine, student should be able to:

1. Discuss etiology, pathogenesis, epidemiology and management of disorders in Chest Medicine on topics given in the list of course contents.
2. Discuss principles of basic sciences as applied to Chest Medicine like hemorrhage, infection, inflammation, malignancy, allergy, and immunity, repair & healing, blood transfusion, shock, antibiotics, sterilization of instruments.
3. Formulate a working diagnosis and consider relevant differential Diagnosis.
4. Decide and implement suitable treatments considering safety, cost factors, complications and side effects.
5. Diagnose chest related problems and emergencies, provide optimum health care, and if required, can refer to the tertiary care centers.
6. Understand clearly various Tuberculosis Eradication Programs, their relevance, needs and impact on community and the methodology employed for implementation of all such programs.
7. Identify common chest related problems in a scientific manner while keeping in mind the logical reasoning and a clear understanding of their impact on human mind and body.
8. Perform recommended chest related clinical procedures with Expertise.
9. Educate community regarding their health issues.
10. Maintain follow-up of patients at appropriate intervals, recognizing new developments and/or complications and offering sensible management protocols.

NOMENCLATURE AND DURATION

NOMENCLATURE OF THE PROPOSED COURSE:

The name of diploma course should be retained as DTCD. This name has been recognized and established for the last many decades worldwide. The duration of courses should be two years structured training in Pulmonology & Critical Care department, NMU, Multan under an approved supervisor.

Course Title: DTCD (Diploma in Tuberculosis and Chest Diseases)

Training Centers: Department of Pulmonology Nishtar Medical University Multan

Course Duration and Scheme of the Course:

Total Duration 2 years structured training (6 months in Part I and one & a half year in Part II including 8 months Rotations) in Pulmonology & Critical Care department Nishtar Medical University Multan under the guidance of an approved supervisor.

Part I -SIX MONTHS

Theoretical Component

- General Pathology /Microbiology
- Applied Physiology
- Applied Anatomy
- Principles of Pharmacology and Therapeutics
- Epidemiology of Tuberculosis and Chest Diseases
- Behavioral Sciences
- Introduction to Biostatistics and Research

Practical Component

- Pathology Specimens/slides
- Microbiology Gram and ZN staining/culture
- MTB Gene Xpert

Clinical Component

- Regular duties in wards and OPD
- Routine history taking, examination and investigations including MDR/XDR TB bay
- **8 Weeks rotation in Internal Medicine**

**Part II- One YEAR & HALF
Theoretical Component**

Pulmonary and Extra-pulmonary
Tuberculosis and Chest Diseases
other than Tuberculosis

Clinical Component

- Regular duties in ward and OPD
- Routine history taking examination and investigations
- Diagnostic and therapeutic procedures like FNA, aspirations, biopsy, spirometry, ABGs, chest intubation, Airway management, Observation in 1st 1.5 year & Independent performance in last 6 months, observations and assistance of major procedures like bronchoscopy& pleuroscopy
 - **6 months Rotations as**
 - 10 Weeks in ICU
 - 4 Weeks in Radiology
 - 4 Weeks in Thoracic surgery
 - 4 weeks in Cardiology
 - 2 Weeks in Oncology

Internal Assessment:

(At the end of 1.5 years training)

In addition to part 1 there will be TOACS based internal assessment by Supervisor; with total 10 stations as 5 Static and 5 interactive stations. Pass Marks 60%

ELIGIBILITY CRITERIA FOR ADMISSION

DOCUMENTS REQUIRED FOR THE ADMISSION

1. Completed DTCD application form
2. Copy of MBBS degree with mark sheets of professional examinations and certificate of number of attempts in the professional examinations
3. Copy of PMC registration certificate
4. Three latest passport size photographs
5. Reference letters from two consultants, with whom the applicant has worked
6. Certificates of completion of required experience

GENERAL REQUIREMENTS

Candidates eligible for admission should have MBBS or equivalent qualification, registered with PMC and can fulfill one of the following criteria:

- a. **One-Year experience as house officer/medical officer from a recognized institution**
- b. **Experience in TB and Chest Diseases Department will be preferred**

SPECIAL REQUIREMENTS

1. **Obtaining pass percentage in the entry test as determined by the NMU rules**
2. **Qualifying the interview successfully**
3. **Having up to the mark credentials as determined by the NMU rules** (number of attempts in each professional, any gold medals or distinctions, relevant work experience, research experience from a recognized institution, any research article published in a National or an International Journal)
4. **Observer ship/Research work in TB/Chest related Field**

REGISTRATION AND ENROLLMENT

- The total number of students enrolled for the course must not exceed 10
- NMU Multan will approve supervisors for diploma courses
- Candidates selected for the courses will be registered with relevant supervisors and enrolled at NMU, Multan

RECOGNITION/EQUIVALENCE OF THE DEGREE AND

INSTITUTION

After two years training course candidate should be given status of PMC -level II specialist equivalent to any other similar qualification.

ACCREDITATION RELATED ISSUES OF THE INSTITUTION:

1. Faculty

Properly qualified teaching staff in accordance with the requirements of Pakistan Medical Council (PMC).

2. Adequate Space

Including class-rooms (with audiovisual aids), computer lab, pathology lab, portable X-Ray Unit and Bronchoscopy Room.

3. Library

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

CONTENT OUTLINE

Part I DTCD

APPLIED ANATOMY

- Histology of lungs
- Respiratory tract
- Thoracic cage, nerves and muscles of respiration
- Lungs, pleurae, mediastinum
- Lymphatic system of the thorax

APPLIED PHYSIOLOGY

- Physical principals governing respiration
- Intrathoracic pressure, respiratory movements, law of gases, gaseous exchange in lungs, vital capacity, artificial respiration, mechanisms in breathing
- Pulmonary respiration and its regulation
- Control of breathing, nervous and chemical
- Effect of exercise on respiration and other body functions
- Work of breathing – lung compliance
- Pulmonary ventilation and lung volume
- Chemistry of respiration
- Electrolyte and water balance
- Hydrogen Ion regulation
- Pulmonary function tests and their interpretation
- Pathologic physiology of abnormal respiration
- Pulmonary circulation
- Electrocardiography

PHYSIOLOGY DEMONSTRATIONS

- Basal metabolism
- Pulmonary function tests

PRINCIPLES OF PHARMACOLOGY & THERAPEUTICS

- Basic Pharmacological Concepts
- Pharmacokinetics and pharmacodynamics
- Drug-receptor interactions
- General principles of clinical toxicology
- The mode of action of commonly used drugs related to respiratory system including ant tuberculous drugs; their doses, side-effects/toxicity, indications and contra-indications

- Basic concepts of pathophysiology and pharmacotherapeutics in tuberculosis and chest diseases
- Drug treatment during special clinical conditions

EPIDEMIOLOGY OF TUBERCULOSIS AND CHEST DISEASES

- Descriptive and analytical epidemiology.
- Epidemiological methods and their application to communicable and non communicable diseases in the community or hospital situation.
- Demographic pattern of the country and the roles of the individual, family, community and socio -cultural milieu in health and disease.
- Principles and components of primary health care and the national health policies
- Basis of epidemiologic approach to disease e.g. Prevalence, incidence.
- Epidemiological aspects of major respiratory and public health problems like tuberculosis, asthma, interstitial lung disease & occupational & environmental disorders.
- Common chest diseases, their clinical manifestations, including emergent situations and of investigative procedures to confirm their diagnosis.
- Various modes of therapy used in treatment of respiratory diseases
- Management including medical and surgical procedures available for treatment of various diseases and a comprehensive plan of management inclusive of national tuberculosis control program.
- Health care delivery system including rehabilitation with DOTS
- Principles of health economics, health administration, health education for community in relation to tuberculosis and chest diseases.
- Need for referral care in tuberculosis and chest diseases.
- Differentiation of community diagnosis from patient diagnosis.
- Quality of health or rehabilitation services in a community factor that will contribute in improving the quality of services.
- Identification of the users and non—users of health/rehabilitation services.
- Designing a flow chart for an epidemiological investigation and to construct components like problem posing planning, field work, data processing, analysis and conclusion in it.
- The purpose of record keeping; to write survey records in relation to tuberculosis and chest diseases
- Effectiveness of immunization programs, immunization schedule and the factors that contribute to improper immunization procedures.
- Brief introduction to research design: basic design of different types of studies: cross-sectional, case-control, cohort, clinical trial, including their respective measures of effect.

GENERAL PATHOLOGY AND MICROBIOLOGY

1. General Pathology

Cell Injury and adaptation

Cell Injury

- Reversible and Irreversible Injury
- Fatty change, Pigmentation, Pathologic calcification
- Necrosis and Gangrene

Cellular adaptation

- Atrophy, Hypertrophy,
- Hyperplasia, Metaplasia, Aplasia

Inflammation

- Acute inflammation --- Vascular changes, Chemotaxis, Opsonization and Phagocytosis
- Enlist the cellular components and chemical mediators of acute inflammation
- Differentiate between exudates and transudate
- Chronic inflammation
- Etiological factors, Granuloma

Cell repair and wound healing

- Regeneration and Repair
- Healing-steps of wound healing by first and second intention
- Factors affecting healing
- Enlist the complications of wound healing

Haemodynamic disorders

- Define and classify the terms Edema, Haemorrhage, Thrombosis, Embolism, Infarction & Hyperaemia
- Define and classify Shock with causes of each.
- Describe the compensatory mechanisms involved in shock
- Describe the pathogenesis and possible consequences of thrombosis
- Describe the difference between arterial and venous emboli

Neoplasia

- Dysplasia and Neoplasia
- Differences between benign and malignant neoplasms
- Enlist the common etiological factors for neoplasia
- Define and discuss the different modes of metastasis
- TNM staging system and tumor grade

Immunity and Hypersensitivity

2. Microbiology

- Pathology of tuberculosis, mycobacteria
- Tubercle bacilli morphology, cultural characteristics and laboratory diagnosis (including serological and immunological tests)
- Mode of infection, transportation and distribution of tubercle bacilli in the body
- Immunobiology
- Allergy and immunity in tuberculosis
- Pathological lesions produced by tubercle bacillus in various parts of the body
- Tuberculosis of lungs in children and adults
- Acute miliary tuberculosis
- BCG Immunization
- Pathology of pneumonias, bacterial, viral and others
- Bronchial Neoplasia , mediastinal tumours and cysts
- Mycotic and other granulomas
- Atelectasis, Bronchiectasis, emphysema
- Diseases of the pleura and pericardium
- Eosinophilia
- Parasitic diseases of respiratory tract, flukes, hydatid cyst, amoeba, schistosoma, ascaris etc.
- Pneumoconiosis
- Sarcoidosis

Pathology and Microbiology Demonstrations

- Smear examination of tubercle bacilli in sputum
- Examination of other bacteria and pathological materials
- Smear examination of other acid fast bacilli and atypical mycobacterium
- Concentration method
- Preparation of culture media
- Exfoliative Cytology
- Culture of T. Bacilli
- Cultivation of T. Bacilli from pathological material
- Culture of other organisms
- Culture and sensitivity of T. bacilli and other organisms
- Differentiation of T. bacilli
- Stained sections of various organs
- Preservation and bottling of specimens
- Counting of bacilli
- Total and differential counts
- Schilling's count
- Erythrocyte sedimentation rate
- Tuberculin test and its interpretation

BEHAVIOURAL SCIENCES

- a. Bio -Psycho -Social (BPS) Model of Health Care
- b. Use of Non-medicinal Interventions in Clinical Practice
 - Communication Skills
 - Counselling
 - Informational Skills
- c. Crisis Intervention/Disaster Management
- d. Conflict Resolution
- e. Breaking Bad News
- f. Medical Ethics, Professionalism and Doctor-Patient Relationship
 - Hippocratic Oath
 - Four Pillars of Medical Ethics (Autonomy, Beneficence, Non-maleficence and Justice)
 - Informed Consent and Confidentiality
 - Ethical Dilemmas in a Doctor's Life
- g. Delivery of Culturally Relevant Care and Cultural Sensitivity
- h. Psychological Aspects of Health and Disease
 - Psychological Aspect of Health
 - Psychological Aspect of Disease
 - Stress and its Management
 - Psychological Aspect of Pain
 - Psychological Aspect of Aging

INTRODUCTION TO BIOSTATISTICS AND RESEARCH

- a. Introduction to Bio -Statistics
- b. Introduction to Bio - Medical Research
- c. Why research is important?
- d. What research to do?
 - Selecting a Field for Research**
 - Drivers for Health Research**
 - Participation in National and International Research**
 - Participation in Pharmaceutical Company Research**
 - Where do research ideas come from**
 - Criteria for a good research topic**
- e. Ethics in Health Research
- f. Writing a Scientific Paper
- g. Making a Scientific Presentation
- h. Searching the Literature

PULMONARY TUBERCULOSIS

Introduction and history of Tuberculosis

- Diseases/factors predisposing to Pulmonary Tuberculosis
- Primary Tuberculosis, Tuberculosis in children, Tuberculosis in adults. Principles of early diagnosis, symptomatology, clinical features, complications and diagnosis
- Classifications of Tuberculosis
- Tuberculosis of the pleura
- Miliary Tuberculosis and Meningeal Tuberculosis
- Differential diagnosis
- Prognosis
- Management and treatment - Medical aspect
- Management and treatment - Surgical aspect
- Dot Programme and its implementation
- Tuberculosis in relation to diabetes
- Tuberculosis in relation to pneumoconiosis
- Tuberculosis and HIV
- Tuberculosis in relation to pregnancy
- Epidemiology of Tuberculosis
- Tuberculosis control
- Surveys, statistics, health education
- Tuberculin test and B.C.G. Immunization
- Mass miniature radiography
- Domiciliary care
- After care and rehabilitation
- TB clinic, hospitals and sanatoria
- Social Insurance
- Public Health Administration and Tuberculosis
- Health services
- The state and Tuberculosis (legislations)
- Role of voluntary organizations, private practitioners
- Problem of Tuberculosis in Pakistan and other countries and Anti-Tuberculosis Scheme

EXTRA-PULMONARY TUBERCULOSIS

- Tuberculosis of glands and differential diagnosis of enlarged lymph nodes
- Bones and joints' Tuberculosis
- Abdominal Tuberculosis
- Tuberculosis of Pericardium
- Tuberculosis of Urogenital tract
- Pelvic Tuberculosis and infertility
- Tuberculosis of Skin

- Tuberculosis of Eye
- Tuberculosis of Larynx and Ear
- Tuberculosis of Nervous System
- Fistula in Ano

NON-TUBERCULOUS CHEST DISEASES

- Diagnostic procedures including bronchoscopy, oesophagoscopy etc.
- Chronic bronchitis and emphysema
- Bronchiectasis
- Lung abscess
- Pneumoconiosis
- Occupational diseases
- Bronchial and intrathoracic neoplasia
- Atelectasis
- Spontaneous pneumothorax
- Pulmonary cysts
- Pleural effusions and diseases of pleura
- Eosinophilic pulmonary disease
- Pneumonias - bacterial, viral and chemical
- Fungal Diseases of Lungs
- Sub-phrenic abscess
- Bronchial asthma
- Congenital diseases of the lungs and bronchial tree
- Parasitic diseases
- Pulmonary embolism and infarction
- Pulmonary hypertension
- Pulmonary heart diseases
- Heart failure
- Pulmonary Oedema and Haemosiderosis
- Pulmonary alveolar proteinosis, pulmonary alveolar microlithiasis
- Sarcoidosis
- Pulmonary manifestation of collagen disease
- Diseases of the diaphragm
- Diseases of Oesophagus and other mediastinal conditions
- Differential diagnosis of Cough
- Differential diagnosis of haemoptysis
- Smoking cessation
- Physiotherapy
- Radiotherapy

RADIOLOGY

- X-ray plant, technique of radiology
- Normal chest
- Diseases of chest wall

- Pulmonary tuberculosis
- Diseases of the pleura, mediastinum and diaphragm
- Non-tuberculous diseases of the lungs
- Abdominal tuberculosis
- Tuberculosis of spine, bones and joints
- Mass miniature radiography
- Ultrasound, computed tomography, stereoscopy
- Interpretation of X-ray films

ICU

- Airway management
- Shock management
- Haemo-dialysis in critical ill patients

Cardiology

- Interpretation of ECG
- Echocardiography

Thoracic Surgery

- Pre & Post OP management of various thoracic procedures
- Mediastinoscopy

Oncology

- Lung cancer
- Pleural tumors
- Mediastinal tumors
- Radiotherapy
- Chemotherapy
- Chest Wall tumors
- SVCO

Workshops

Four mandatory certified workshops during Part II 1.5 years training to be conducted in Department of Medical Education under kind supervision of Prof. Dr. Rashad Qamar Rao as Following:

1. BLS
2. ACLS
3. Communication Skills
4. Research Methodology & Biostatistics

Temporary Transfer to Affiliated Institution

Candidate can have a transfer to PMC recognized teaching institution on temporary basis upto 8 weeks with prior written permission from NMU, Multan Registrar Office/Supervisor/Head of Department if the said competent Authority agree/allow the explained reason.

METHODS OF INSTRUCTION/COURSE CONDUCTION

As a policy, active participation of students at all levels will be encouraged.

Following teaching modalities will be employed:

1. Lectures
2. Seminar Presentation and Journal Club Presentations
3. Group Discussions
4. Grand Rounds
5. Clinico-pathological conferences
6. SEQ as assignments on the content areas
7. Skill teaching in emergency and wards
8. Self study, assignments and use of internet
9. Bedside teaching rounds in ward
10. OPD & Follow-up clinics
11. Long and short case presentations

In addition to the conventional teaching methodologies following interactive strategies will also be introduced to improve both communication and clinical skills in the upcoming consultants:

1.1. Monthly Student Meetings

Each affiliated medical college approved to conduct training for DTCD will provide a room for student meetings/discussions such as

- a. Journal Club Meeting
- b. Core Curriculum Meetings
- c. Skill Development

a. Journal Club Meeting

Two hours per month should be allocated to the presentation and discussion of a recent Journal article related to Chest Diseases. The article should be critically evaluated and its applicable results should be highlighted which can be incorporated in clinical practice. Record of all such articles should be maintained in the relevant department of each medical college. Students of different medical colleges may be given an opportunity to share all such interesting articles with each other.

b. Core Curriculum Meetings

All the core topics of DTCD should be thoroughly discussed during these sessions. The duration of each session should be at least two hours once a month. It should be chaired by the chief student (elected by the students of the relevant diploma). Each student should be given an opportunity to brainstorm all topics included in the course and to generate new ideas regarding the improvement of the course structure.

c. Skill Development

Two hours twice a month should be assigned for learning and practicing clinical skills.

List of skills to be learnt during these sessions is as follows:

1. Communication skills
2. Physical examination related to the chest medicine
3. Practical skills i.e, use of relevant clinical instruments
4. Presentation skills: Power point, lectures, small group discussions, article presentation etc.
5. Research and scientific writing
6. Management of chest related emergencies in Primary Care
7. For acquisition of procedural skills like FNA, aspiration, biopsy, spirometry, ABGs, chest intubation etc. opportunities during ward postings should be availed.

1.2 Annual Grand Meeting

Once a year all students enrolled for DTCD should be invited to the annual meeting at NMU, Multan.

One full day will be allocated to this event. All the chief students will present their annual reports. Issues and concerns related to their relevant diploma courses will be discussed. Feedback may be collected and also suggestions can be sought in order to involve students in decision making. The research work and their literary work may also be displayed.

In the evening an informal get together and dinner should be arranged. This will help in creating a sense of belonging and ownership among students and the faculty.

LOG BOOK

The trainees must maintain a log book and get it signed regularly by the supervisor. A complete and duly certified log book should be part of the requirement to sit for the DTCD examination. Log book should include adequate number of diagnostic and therapeutic procedures, routine and emergency management of patients, case presentations in CPCs, journal club meetings and literature review.

Proposed Format of Log Book is as follows:

Candidate’s Name: _____

Roll No. _____

Procedures:

- 1. FNA
- 2. Aspirations
- 3. Biopsy
- 4. Spirometry
- 5. ABGs
- 6. Chest Intubation
- 7. Pleurodesis
- 8. Observation and assistance of major procedures like
Bronchoscopy and Broncho-alveolar lavage

S. No.	Date	Pt. name, age, gender & admission #	Diagnosis	Procedure performed	Supervisor’s signature
1					
2					

Emergencies Handled:

S. No.	Date	Pt. name, age, gender & admission #	Diagnosis	Procedure/Management	Supervisor’s signature
1					
2					

Case presented:

S. No.	Date	Pt. name, age, gender & admission #	Case presented	Supervisor’s signature
1				
2				

Seminar/Journal club presentation:

S. No.	Date	Topic	Supervisor’s signature
1			
2			

Evaluation Record:

(Excellent, Good, Adequate, Inadequate, Poor)

S. No.	Date	Method of Evaluation (Oral, Practical, Theory)	Rating	Supervisor’s signature
1				
2				

LITERATURE REVIEW

Students will be assigned a clinical problem; most commonly encountered in the relevant specialty and will be specifically trained to review literature in the pertinent field and write a 'Review of an **Article**' comprising of:

- Topic
- Introduction
- Discussion of the reviewed literature
- Conclusion
- References

EXAMINATIONS

Assessment

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

Student-Centered Integrated Assessment

It views students as decision-makers in need of information about their own performance. Integrated Assessment is meant to give students responsibility for deciding what to evaluate, as well as how to evaluate it, encourages students to 'own' the evaluation and to use it as a basis for self-improvement. Therefore, it tends to be growth-oriented, student-controlled, collaborative, dynamic, contextualized, informal, flexible and action-oriented.

In the proposed curriculum, it will be based on:

- Self Assessment by the student
- Peer Assessment
- Informal Internal Assessment by the Faculty

Self Assessment by the Student

Each student will be provided with a pre-designed self-assessment form to evaluate his/her level of comfort and competency in dealing with different relevant clinical situations. It will be the responsibility of the student to correctly identify his/her areas of weakness and to take appropriate measures to address those weaknesses.

Peer Assessment

The students will also be expected to evaluate their peers after the monthly small group meeting. These should be followed by a constructive feedback according to the prescribed guidelines and should be non-judgmental in nature. This will enable students to become good mentors in future.

Informal Internal Assessment by the Faculty

There will be no formal allocation of marks for the component of Internal Assessment so that students are willing to confront their weaknesses rather than hiding them from their instructors. It will include:

- a. Punctuality
- b. Ward work
- c. Monthly assessment (written tests to indicate particular areas of weaknesses)
- d. Participation in interactive sessions

Formative Assessment

Will help to improve the existing instructional methods and the curriculum in use

Feedback to the faculty by the students:

After every three months students will be providing a written feedback regarding their course components and teaching methods. This will help to identify strengths and weaknesses of the relevant course, faculty members and to ascertain areas for further improvement.

Summative Assessment

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

Eligibility to Appear in Final Examination

- Only those candidates will be eligible to take final examination, who have passed Part 1 examination (after 6 months off education) and have completed two years of structured/supervised training program.
- Students who have completed their log books and hold certificates of 75% attendance may be allowed to sit for the exam
- The application for the final examination will be forwarded with recommendations of the supervisor
- Only those candidates who qualify in theory will be called for clinical examination.

Internal Assessment:

(At the end of 1.5 years training)

In addition to part 1 there will be TOACS based internal assessment by Supervisor;
 Total 10 stations Pass Marks 60%
 5 Static
 5 interactive stations

DTCD Examination

Part I DTCD

Topics included in paper 1

- 1. General Pathology / Microbiology (15 MCQ)/(10 MCQ)**
- 2. Physiology (15 MCQ)**
- 3. Anatomy (15 MCQ)**
- 4. Principles of Pharmacology and Therapeutics (20 MCQ)**
- 5. Epidemeology of Tubeculosis and Chest Diseases (10 MCQ)**
- 6. Behavioral Sciences (10 MCQ)**
- 7. Introduction to Biostatistics and Research (05 MCQ)**

Components of the Part 1 examination

MCQ Paper	100	One Best Type
Total Marks	100	Marks

Part II DTCD

Topics included in paper 1

Pulmonary and Extra-Pulmonary Tuberculosis

Topics included in paper 2

Non-Tuberculous Chest Diseases

Part II Examination

Theory

Paper I	100 Marks	3 Hours
05SEQs (No Choice)	50 Marks	
50 MCQs	50 Marks	
Paper II	100 Marks	3 Hours
05SEQs (No Choice)	50 Marks	
50 MCQs	50 Marks	

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

OSCE **90 Marks**

10 stations each carrying 9 marks of 10 minutes duration; each evaluating performance-based assessment with five of them interactive

Clinical **90 Marks**

Four short cases each carrying 15 marks and one long case of 30 marks.

Components of the Part 2 examination

Theory paper 1	100 marks
Theory paper 2	100 marks
Clinical/Oral	180 marks
Log Book	20 marks
Total Marks	400

A panel of four examiners from Chest Diseases (Two internal and two external) will be appointed for practical examination. One examiner from the faculty of Preventive Medicine may also be included.

Each component of practical examination will be assessed by two examiners awarding marks simultaneously and independently. The final score awarded will be an average score, as agreed by both examiners.

Pass Percentage and other Regulations Regarding Examination :

Criterion referenced assessment principles will be used

20 marks for the log book will be included in the OSCE component

60 % marks will be a pass score in each component.

Candidates passing Theory shall have three chances to pass clinical/VIVA examination including the one immediate after theory, failing which they have to re-appear in theory.

Candidates failing theory shall have to re-sit in whole part-II examination

A maximum of 5 attempts to sit for the examination will be allowed, to be availed within 3 calendar years of the first attempt

Re -admission in the DTCD course is not permissible under any circumstances

The results will be announced according to rules and regulations set by the Examination Branch of Nishtar Medical University Multan

RECOMMENDED BOOKS

1. Crofton and Douglas. Respiratory Diseases. 5th ed.
London:Oxford.

2. Clinical Respiratory Medicine 4th Edition, Authors: Stephen Spiro,

Gerard Silvestri, Alvar Agustí

3. Murray & Nadel's Textbook of Respiratory Medicine, 2-Volume Set

7th Edition - May 17, 2021; Editors: V.Courtney Broaddus, Joel Ernst,
Talmadge E King, Jr, Stephen Lazarus, Kathleen F. Sarmiento, Lynn M. Schnapp,
Renee Stapleton, Michael B. Gotway

4. Oxford Handbook of Respiratory Medicine (4 ed.)

5. High-Resolution CT of the Lung Fifth Edition Richard Webb

6. Davies P. D. O. Clinical Tuberculosis . London: Chapman and
Hall.

7. GINA Global Initiative for Asthma, Guidelines

8. Global Initiative for Chronic Obstructive Lung Disease

9. PMDT guidelines for Drug sensitive & drug resistant TB

10. NEJM, New England Journal of Medicine, USA

11. Pakistan Journal of Chest Medicine, Pakistan Chest Society,
Karachi.

12. Journal of British Thoracic Society, London.

13. Indian Journal of Tuberculosis, Tuberculosis Association of India

14. Indian Journal of Chest Diseases and Allied Sciences, University
of Delhi and National College of Chest Physician

15. Rana M. H., Ali S. Mustafa M. A Handnook of
*Behavioural Sciences for Medical and Dental
Students. Lahore: University of Health Science; 2007.*

16. Fathalla M. F. and Fathalla M. M. F. A Practical Guide
*for Health Researcher. Cairo: World Health Organization;
2004.*

17. Rau's Respiratory Care Pharmacology 9th Edition

by Douglas S. Gardenhire EdD RRT-NPS FAARC

18. Diagnostic Pathology: Thoracic, 3rd Edition

Authors : David Suster & Mari Mino-Kenudson & Saul Suster

