**M D Tuberculosis and Respiratory Medicine**

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JSS University, Mysore

M D Tuberculosis and Respiratory Medicine

CURRICULUM

Goals
The goals of postgraduate training course would be to train a MBBS doctor who will:
1. Practice efficiently and effectively, backed by scientific knowledge and skill base.
2. Exercise empathy and a caring attitude and maintain high ethical standards.
3. Continue to evince keen interest in continuing education in the speciality irrespective of whether he is in a teaching institution or is a practicing specialist.
4. Be a motivated 'teacher' - defined as a specialist keen to share his knowledge and skills with a colleague or a junior or any learner.

Objectives
The following objectives are laid out to achieve the goals of the course. These objectives are to be achieved by the time the candidate completes the course. The objectives may be considered under the subheadings:
1. Knowledge (Cognitive domain).
2. Skills (Psycho motor domain).
3. Human values, ethical practice and communication abilities.

Knowledge:
1. Describe etiology, pathophysiology, principles of diagnosis and management of common problems including emergencies, in adults and children.
2. Describe indications and methods for fluid and electrolyte replacement therapy including blood transfusion.
3. Describe common malignancies in the country and their management including prevention.
4. Demonstrate understanding of basic sciences relevant to this specialty.
5. Identify social, economic, environmental and emotional determinants in a given case, and take them into account for planning therapeutic measures.
6. Recognize conditions that may be outside the area of his specialty/competence and to refer them to the proper specialist.
7. Advice regarding the operative or non-operative management of the case and to carry out this management effectively.
8. Update oneself by self-study and by attending courses, conferences and seminars relevant to the speciality.
9. Teach and guide his team, colleagues and other students.
10. Undertake audit, use information technology tools and carry out research, both basic and clinical, with the aim of publishing his work and presenting his work at various scientific fora.

Skills
1. Take a proper clinical history, examine the patient, perform essential diagnostic procedures and order relevant tests and interpret them to come to a reasonable diagnosis about the surgical condition.
2. Perform common procedures relevant to the specialty.
3. Provide basic and advanced life saving support services (BLS) in emergency situations.
4. Undertake complete monitoring of the patient.

Human values, Ethical practice and Communication abilities
1. Adopt ethical principles in all aspects of his/her practice. Professional honesty and integrity are to be fostered. Care is to be delivered irrespective of the social status, caste, creed or religion of the patient.
2. Develop communication skills, in particular the skill to explain various options available in management and to obtain a true informed consent from the patient.
3. Provide leadership and get the best out of his team in a congenial working atmosphere.
4. Apply high moral and ethical standards while carrying out human or animal research.
5. Be humble and accept the limitations in his knowledge and skill and to ask for help from colleagues when needed.
6. Respect patient's rights and privileges including patient's right to information and right to seek a second opinion.

The goal is to provide learning opportunities for acquisition of knowledge, human values and skills that may enable to diagnose and treat relevant diseases and disorders as a specialist.

Course Contents
Topics:
1. Anatomy and Physiology of Respiratory system
2. Scientific basis of Lung function
3. Control of respiration
4. Ventilation, Perfusion and Diffusion
5. Pulmonary function tests
6. Respiratory muscles and Pulmonary mechanics
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52. Pulmonary rehabilitation
53. Lung transplantation
54. Medical thoracoscopy
55. Ethics in RICU and research

**Proposed Training programme for the students**

- Once a week - Case discussion
- Once a week - Journal cub
  - Subject Seminar
  - Radiology and Histopathological discussion
  - Grand rounds
- Once a Month - Mortality Meeting, Inter Departmental meetings, Academic Society meeting
Teaching and Learning Activities

A candidate pursuing the course should work in the institution as a full time student. No candidate should be permitted to run a clinic/laboratory/nursing home while studying postgraduate course. Each year should be taken as a unit for the purpose of calculating attendance.

Every student shall attend teaching and learning activities during each year as prescribed by the department and not absent himself / herself from work without valid reasons.

A list of teaching and learning activities designed to facilitate students acquire essential knowledge and skills outlined is given below.

1. Lectures: Lectures are to be kept to a minimum. They may, however, be employed for teaching certain topics. Lectures may be didactic or integrated.
   a. Didactic Lectures: Recommended for selected common topics for postgraduate students of all specialties. Few topics are suggested as examples:
      i. Bio-statistics.
      ii. Use of library.
      iii. Research methods.
      iv. Medical code of conduct and medical ethics.
      v. National health and disease control programmes.
      vi. Communication Skills etc.
      These topics may preferably taken up in the first few weeks of the 1st year.
   b. Integrated Lectures: These are recommended to be taken by multidisciplinary teams for selected topics, eg. jaundice, diabetes mellitus, thyroid etc.

2. Journal Club: Recommended to be held once a week. All the PG students are expected to attend and actively participate in discussion and enter in the log book relevant details. Further, every candidate must make a presentation from the allotted journal(s), selected articles at least four times a year and a total of 12 seminar presentations in three years. The presentations would be evaluated using check lists and would carry weightage for internal assessment (See checklist in chapter IV). A time table with names of the student and the moderator should be announced at the beginning of every year.

3. Subject Seminar: Recommended to be held once a week. All the PG students are expected to attend and actively participate in discussion and enter in the Log Book relevant details. Further, every candidate must present on selected topics at least four times a year and a total of 12 seminar presentations in three years. The presentations would be evaluated using check lists and would carry weightage for internal assessment (See
checklist in chapter IV). A timetable for the subject with names of the student and the moderator should be scheduled at the beginning of every year.

4. **Student Symposium**: Recommended as an optional multi disciplinary programme. The evaluation may be similar to that described for subject seminar.

5. **Ward Rounds**: Ward rounds may be service or teaching rounds.
   
a. **Service Rounds**: Postgraduate students and interns should do every day for the care of the patients. Newly admitted patients should be worked up by the PGs and presented to the seniors the following day.

   b. **Teaching Rounds**: Every unit should have 'grand rounds' for teaching purpose. A diary should be maintained for day to day activities by the students.

   Entries of (a) and (b) should be made in the log book.

   **Clinical Case Presentations**: Minimum of 5 cases to be presented by every candidate each year. They should be assessed using check lists and entries made in the log book

6. **Clinico-Pathological Conference**: Recommended once a month for all post graduate students. Presentation shall be done by rotation. If cases are not available due to lack of clinical postmortems, it could be supplemented by published CPCs.

7. **Inter Departmental Meetings**: Strongly recommended particularly with departments of pathology and radio-diagnosis at least once a week. These meetings should be attended by post graduate students and relevant entries must be made in the log book.

   **Pathology**: A dozen interesting cases may be chosen and presented by the post graduate students and discussed by them as well as the senior staff of Surgery department. The staff of Pathology department would then show the slides and present final diagnosis. In these sessions the advance immuno-histo-chemical techniques, the burgeoning markers other recent developments can be discussed.

   Radio-diagnosis: Interesting cases and the imaging modalities should be discussed.

8. **Teaching Skills**: Post graduate students must teach under graduate students (eg.medical, nursing) by taking demonstrations, bed side clinics, tutorials, lectures etc.

   Assessment is made using a checklist by faculty as well students. (See model check list in chapter IV). Record of their participation be kept in log book. Training of postgraduate students in educational science and technology is recommended.
9. **Continuing Medical Education Programmes (CME):** Recommended that at least 2 state level CME programmes should be attended by each student in 3 years.

10. **Conferences:** Attending conferences is compulsory. The post graduates should attend 1 state, 1 regional (if applicable) and 1 national conference. They should present papers, at least 2 oral or posters, in 3 years training period.

**Dissertation**

a. Every candidate pursuing degree course is required to carry out work on as selected research project under the guidance of a recognised postgraduate teacher. The results of such a work shall be submitted in the form of a dissertation.

b. The dissertation is aimed to train a post graduate student in research methods and techniques. It includes identification of a problem, formulation of a hypothesis, search and review of literature, getting acquainted with recent advances, designing of a research study, collection of data, critical analysis, comparison of results and drawing conclusions.

c. Every candidate shall submit to the Registrar (Academic), in the prescribed proforma, a synopsis containing particulars of proposed dissertation work six months from the date of commencement of the course on or before the dates notified by the University. The synopsis shall be sent through the proper channel.

d. Such synopsis will be reviewed and the dissertation topic will be registered by the University. No change in the dissertation topic or guide shall be made without prior approval of the University.

e. The dissertation should be written under the following headings:

   i. Introduction
   ii. Aims or objectives of study
   iii. Review of literature
   iv. Material and methods
   v. Results
   vi. Discussion
   vii. Conclusion
   viii. Summary
   ix. References (Vancouver style)
   x. Tables
   xi. Annexures

f. The written text of dissertation shall be not less than 50 pages and shall not exceed 150 pages excluding references, tables, questionnaires and other annexures. It should be neatly typed in
double line spacing on one side of paper (A4 size, 8.27" x 11.69") and bound properly. Spiral binding should be avoided. The dissertation shall be certified by the guide, head of the department and head of the Institution.

g. Four copies of dissertation thus prepared shall be submitted to the Registrar (Evaluation), six months before final examination, on or before the dates notified by the University.

h. The dissertation shall be valued by examiners appointed by the University. Approval of dissertation work is an essential precondition for a candidate to appear in the University examination.

i. For some more details regarding Guide etc please see chapter I and for books on research methodology, ethics, etc, see chapter IV.

**Rotation Postings**

This is essential to acquire knowledge in allied subjects as applicable to Tuberculosis and respiratory medicine. It is preferable to post PG students to

i) In the parent department of TB and Respiratory Medicine 26 months
ii) Department of Medicine - 6 months
iii) Cardiology - 1 month
iv) Department of Radio-diagnosis - 1 month
v) Casualty and ICU (2 weeks each) - 1 month
vi) Cardio-Thoracic Surgery - 1 month

**Monitoring Learning Progress**

It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only also helps teachers to evaluate students, but also students to evaluate themselves. The monitoring is done by the staff of the department based on participation of students in various teaching / learning activities. It may be structured and assessment be done using checklists that assess various aspects. Checklists are given in chapter IV.

The learning out comes to be assessed should included: (1) Personal attitudes,
(2) Acquisition of knowledge, (3) Clinical and operative skills, (4) Teaching skills and (5) Dissertation

1. **Personal Attitudes:** The essential items are:
   a. Caring attitudes.
   b. Initiative.
   c. Organisational ability.
   d. Potential to cope with stressful situations and undertake responsibility.
e. Trust worthiness and reliability.

f. To understand and communicate intelligibly with patients and others.

g. To behave in a manner that establishes professional relationships with patients and colleagues.

h. Ability to work in team.

i. A critical enquiring approach to the acquisition of knowledge.

The methods used mainly consist of observation. It is appreciated that these items require a degree of subjective assessment by the guide, supervisors and peers.

2. **Acquisition of Knowledge**: The methods used comprise of "Log Book" which records participation in various teaching / learning activities by the students. The number of activities attended and the number in which presentations are made are to be recorded. The log book should periodically be validated by the supervisors. Some of the activities are listed. The list is not complete. Institutions may include additional activities, if so desired.

**Journal Review Meeting (Journal Club)**: The ability to do literature search, in depth study, presentation skills, and use of audio-visual aids are to be assessed. The assessment is made by faculty members and peers attending the meeting using a checklist (see model checklist -1, chapter IV)

**Seminars / Symposia**: The topics should be assigned to the student well in advance to facilitate in depth study. The ability to do literature search, in depth study, presentation skills and use of audio-visual aids are to be assessed using a checklist (see model checklist-II, chapter IV)

**Clinico-pathological conferences**: This should be a multidisciplinary case study of an interesting case to train the candidate to solve diagnostic and therapeutic problems by using an analytical approach. The presenter(s) are to be assessed using a check list similar to that used for seminar.

**Medical Audit**: Periodic morbidity and mortality meeting be held. Attendance and participation in these must be insisted upon. This may not be included in assessment.

3. **Clinical skills**:

**Day to Day work**: Skills in outpatient and ward work should be assessed periodically. The assessment should include the candidates' sincerity and punctuality, analytical ability and communication skills (see model checklist III, chapter IV).

**Clinical meetings**: Candidates should periodically present cases to his peers and faculty members. This should be assessed using a check list (see Model checklist IV, chapter IV).

**Clinical and Procedural skills**: The candidate should be given graded responsibility to enable learning by apprenticeship. The performance is assessed by the guide by direct observation. Particulars are recorded by the student in the log book. (Table No 3, Chapter IV)
4. **Teaching skills:** Candidates should be encouraged to teach undergraduate medical students and paramedical students, if any. This performance should be based on assessment by the faculty members of the department and from feedback from the undergraduate students (See model checklist V, Chapter IV)

5. **Dissertation in the Department:** Periodic presentations are to be made in the department. Initially the topic selected is to be presented before submission to the University for registration, again before finalisation for critical evaluation and another before final submission of the completed work (See model checklist VI & VII, Chapter IV)

6. **Periodic tests:** The departments may conduct three tests, two of them be annual tests, one at the end of first year and the other in the second year. The third test may be held three months before the final examination. The tests may include written papers, practical / clinical and viva voce.

7. **Work diary/Log Book:** Every candidate shall maintain a work diary and record his/her participation in the training programmes conducted by the department such as journal reviews, seminars, etc. Special mention may be made of the presentations by the candidate as well as details of clinical or laboratory procedures, if any conducted by the candidate.

8. **Records:** Records, log books and marks obtained in tests will be maintained by the Head of the Department and will be made available to the University or MCI.

### Log book

The log book is a record of the important activities of the candidates during his training. Internal assessment should be based on the evaluation of the log book. Collectively, log books are a tool for the evaluation of the training programme of the institution by external agencies. The record includes academic activities as well as the presentations and procedures earned out by the candidate.

**Format for the log** book for the different activities is given in Tables 1, 2 and 3 of Chapter IV. Copies may be made and used by the institutions.

**Format for PG Diary** (Log Book)

1. Cases seen on rounds — description of interesting cases and other miscellaneous topics discussed.
2. Outpatient cases seen and details of interesting cases with follow up.
3. Procedures done on inpatients and outpatients and consultation done
4. Undergraduate teaching done during the day with details.
5. PG training programmes attended — details of bedside clinics, basic sciences, subject and clinical seminars, Journal clubs, mortality meet and hospital conference.
6. Night duties — details of patients managed and emergencies,
consultation. Ward calls attended.

7. Details of study with topics covered during off hours in library / home. Periodicals and Journals reviewed with notes on interesting articles.

8. Medical meetings, Seminars, Local API / CSI meetings or other interesting CME, seminars attended.

9. Diary should be reviewed on weekly basis by unit faculty and certified on monthly basis for P.G.’s benefit at the end of each Medical/speciality rotation. Faculty should comment regarding absences and irregularities (Late arrivals and early departure) and make appropriate comments and suggest remedial measure for problematic prodigies.

10. Size of note book: 15 cm with 200 pages. All note books should have seal of college and H.O.D.s approval: Extra note books may be utilised as and when necessary. Diaries should be presented at the time of University clinical exam for review by examiners as per University regulations.

Procedure for defaulters: Every department should have a committee to review such situations. The defaulting candidate is counseled by the guide and head of the department. In extreme cases of default the departmental committee may recommend that defaulting candidate be withheld from appearing the examination, if she/he fails to fulfill the requirements in spite of being given adequate chances to set himself or herself right.

Internal evaluation of P.G. Students performance during three years

Ist Year of M.D. (TB & Respiratory Medicine) Students

Assessment of students with multiple choice questions multiple short notes covering wide range of topics and practical examination with attention to history taking, clinical skills, relevant diagnostics and therapeutic plans ascertained. Suggested time of evaluation after first six months and at the end of first year rotation.

IIInd Year of M.D. (TB & Respiratory Medicine) Students

Students should be evaluated at the end of II year on Theory and Practical examinations along with one faculty from General Medicine. For other specialties with short rotations of one month may evaluate the candidate for comprehension of the subject and clinical skills.
III Year of M.D. (TB & Respiratory Medicine) Students

P.G's should be evaluated at the beginning of his 3rd year training by panel of senior Postgraduate teachers. Suggested pattern of assessment with two essay type theory papers and multiple choice questions (200) — clinical skills, diagnostic and therapeutic skills evaluated intermittently by unit faculties.

Mock examination suggested — 3 to 4 months prior to final university exam should consist of two question papers each 3 hours duration, and Clinical and viva voce similar to university examination under the supervision of senior faculty.

Results of all evaluations should be entered into P.G's diary and departmental file for documentation purposes. Main purpose of periodic examination and accountability is to ensure clinical expertise of students with practical and communication skills and balance broader concept of diagnostic and therapeutic challenges.

Scheme of Examination

Candidates will be allowed to appear for examination only if attendance (minimum 80%) and internal assessment are satisfactory and dissertation is accepted.

A. **Theory (Written Papers)** 400 marks

There shall be four question papers, each of three hours duration. Each paper shall consist of two long essay questions each question carrying 20 marks and 6 short essay questions each carrying 10 marks. Total marks for each paper will be 100. **Questions on recent advances may be asked in any or all the papers.** Details of distribution of topics for each paper will be as follows:

Paper I: Basic Sciences including Anatomy and Physiology pertaining to Respiratory System
Paper II : Non Tubercular Respiratory infectious Diseases and General Medicine
Paper III : Tuberculosis - Pulmonary and extra pulmonary
Paper IV : Non infectious diseases of lung

*Note: The distribution of chapters / topics shown against the papers are suggestive only.*
B. Clinical Examination: 200 marks

To elicit competence in clinical skills and to discuss differential diagnostic therapeutic aspects

One Long case — 100 marks

Two Short cases - 2 X 50 marks - one of the cases may be from General Medicine like Diabetes Mellitus, Cirrhosis, simple mitral stenosis etc.

C. Viva Voce Examination 100 marks
Aims to elicit candidates knowledge and investigative / therapeutic skills.

**Viva-voce examination:** (80 marks)
All examiners will conduct viva-voce jointly on candidate's comprehension, analytical approach, expression and interpretation of data. It includes all components of course contents. In addition candidates may be given case reports, charts, Spirometry, ABG, gross specimens, histo-pathology slides, x-rays, ultrasound, CT scan images, etc., for interpretation and questions on these as well as use of instruments will be asked. It includes discussion on dissertation also.

**Pedagogy Exercise:** (20 marks)
A topic be given to each candidate in the beginning of clinical examination.

He/she is asked to make a presentation on the topic for 8-10 minutes.

D. Maximum marks

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ANNEXURE - I

JOURNALS

- Year/month upto which Indian Journals available --
  1. Indian Jl of Chest Diseases and Allied Sciences (Q)
  2. Indian Jl of Tuberculosis (Q)
  3. Asian Journal of Critical care

- Year/month upto which Foreign Journals available
  1. American Jl of Respiratory and Critical Care Medicine (F)
  2. Tuberculosis (BM)
  3. Clinics in Chest Medicine (Q)
  4. Infectious disease clinics of North America (Q)
  5. Immunology and Allergy clinics
  6. Journal of Critical care
  7. Journal of infectious diseases
  8. Chest (BM) New

- List of Online Peer Review Journals:-
  2. Applied Cardiopulmonary Pathophysiology
  3. Archivos de Bronconeumología (English)
  4. BMC Pulmonary Medicine
  5. Canadian Respiratory Journal: Journal of the Canadian Thoracic Society
  6. Chest
  7. Chest Disease Reports
  8. Clinics In Chest Medicine
  9. European Respiratory Journal
  10. European Respiratory Review
  11. Experimental Lung Research
  12. Heart Views
  13. Indian Journal of Chest Diseases and Allied Sciences
  15. Internet Journal of Pulmonary Medicine
  16. ISRN Pulmonology
  17. Jornal Brasileiro de Pneumologia
  18. Jornal de pneumologia
  19. Lung
  20. Lung India
  21. The Open Lung Cancer Journal
  22. PVRI Review
  23. Respirology
  24. Revista Chilena de Enfermedades Respiratorias
  25. Revista Portuguesa de Pneumologia
26. RT: The Journal for Respiratory Care Practitioners
27. Thorax
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   These topics may preferably taken up in the first few weeks of the 1st year.
   b. **Integrated Lectures**: These are recommended to be taken by multidisciplinary teams for selected topics, eg. jaundice, diabetes mellitus, thyroid etc.

2. **Journal Club**: Recommended to be held once a week. All the PG students are expected to attend and actively participate in discussion and enter in the log book relevant details. Further, every candidate must make a presentation from the allotted journal(s), selected articles at least four times a year and a total of 12 seminar presentations in three years. The presentations would be evaluated using check lists and would carry weightage for internal assessment (See checklist in chapter IV). A time table with names of the student and the moderator should be announced at the beginning of every year.

3. **Subject Seminar**: Recommended to be held once a week. All the PG students are expected to attend and actively participate in discussion and enter in the Log Book relevant details. Further, every candidate must present on selected topics at least four times a year and a total of 12 seminar presentations in three years. The presentations would be evaluated using check lists and would carry weightage for internal assessment (See
checklist in chapter IV). A timetable for the subject with names of the student and the moderator should be scheduled at the beginning of every year.

4. **Student Symposium**: Recommended as an optional multi disciplinary programme. The evaluation may be similar to that described for subject seminar.

5. **Ward Rounds**: Ward rounds may be service or teaching rounds.
   a. **Service Rounds**: Postgraduate students and interns should do every day for the care of the patients. Newly admitted patients should be worked up by the PGs and presented to the seniors the following day.
   b. **Teaching Rounds**: Every unit should have 'grand rounds' for teaching purpose. A diary should be maintained for day to day activities by the students.

   Entries of (a) and (b) should be made in the log book.

   **Clinical Case Presentations**: Minimum of 5 cases to be presented by every candidate each year. They should be assessed using check lists and entries made in the log book

6. **Clinico-Pathological Conference**: Recommended once a month for all post graduate students. Presentation shall be done by rotation. If cases are not available due to lack of clinical postmortems, it could be supplemented by published CPCs.

7. **Inter Departmental Meetings**: Strongly recommended particularly with departments of pathology and radio-diagnosis at least once a week. These meetings should be attended by post graduate students and relevant entries must be made in the log book.

   **Pathology**: A dozen interesting cases may be chosen and presented by the post graduate students and discussed by them as well as the senior staff of Surgery department. The staff of Pathology department would then show the slides and present final diagnosis. In these sessions the advance immuno-histo-chemical techniques, the burgeoning markers other recent developments can be discussed.

   Radio-diagnosis: Interesting cases and the imaging modalities should be discussed.

8. **Teaching Skills**: Post graduate students must teach under graduate students (eg.medical, nursing) by taking demonstrations, bed side clinics, tutorials, lectures etc.

   Assessment is made using a checklist by faculty as well students. (See model check list in chapter IV). Record of their participation be kept in log book. Training of postgraduate students in educational science and technology is recommended.
9. **Continuing Medical Education Programmes (CME):** Recommended that at least 2 state level CME programmes should be attended by each student in 3 years.

10. **Conferences:** Attending conferences is compulsory. The post graduates should attend 1 state, 1 regional (if applicable) and 1 national conference. They should present papers, at least 2 oral or posters, in 3 years training period.

**Dissertation**

a. Every candidate pursuing degree course is required to carry out work on as selected research project under the guidance of a recognised postgraduate teacher. The results of such a work shall be submitted in the form of a dissertation.

b. The dissertation is aimed to train a post graduate student in research methods and techniques. It includes identification of a problem, formulation of a hypothesis, search and review of literature, getting acquainted with recent advances, designing of a research study, collection of data, critical analysis, comparison of results and drawing conclusions.

c. Every candidate shall submit to the Registrar (Academic), in the prescribed proforma, a synopsis containing particulars of proposed dissertation work six months from the date of commencement of the course on or before the dates notified by the University. The synopsis shall be sent through the proper channel.

d. Such synopsis will be reviewed and the dissertation topic will be registered by the University. No change in the dissertation topic or guide shall be made without prior approval of the University.

e. The dissertation should be written under the following headings:

   i. Introduction
   ii. Aims or objectives of study
   iii. Review of literature
   iv. Material and methods
   v. Results
   vi. Discussion
   vii. Conclusion
   viii. Summary
   ix. References (Vancouver style)
   x. Tables
   xi. Annexures

f. The written text of dissertation shall be not less than 50 pages and shall not exceed 150 pages excluding references, tables, questionnaires and other annexures. It should be neatly typed in
double line spacing on one side of paper (A4 size, 8.27" x 11.69") and bound properly. Spiral binding should be avoided. The dissertation shall be certified by the guide, head of the department and head of the Institution.

g. Four copies of dissertation thus prepared shall be submitted to the Registrar (Evaluation), six months before final examination, on or before the dates notified by the University.

h. The dissertation shall be valued by examiners appointed by the University. Approval of dissertation work is an essential precondition for a candidate to appear in the University examination.

i. For some more details regarding Guide etc please see chapter I and for books on research methodology, ethics, etc, see chapter IV.

**Rotation Postings**

This is essential to acquire knowledge in allied subjects as applicable to Tuberculosis and respiratory medicine. It is preferable to post PG students to

i) In the parent department of TB and Respiratory Medicine 26 months

ii) Department of Medicine - 6 months

iii) Cardiology - 1 month

iv) Department of Radio-diagnosis - 1 month

v) Casualty and ICU (2 weeks each) - 1 month

vi) Cardio-Thoracic Surgery - 1 month

**Monitoring Learning Progress**

It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only also helps teachers to evaluate-students, but also students to evaluate themselves. The monitoring is done by the staff of the department based on participation of students in various teaching / learning activities. It may be structured and assessment be done using checklists that assess various aspects. Checklists are given in chapter IV.

The learning out comes to be assessed should included: (1) Personal attitudes,

(2) Acquisition of knowledge, (3) Clinical and operative skills, (4) Teaching skills and (5) Dissertation

1. **Personal Attitudes:** The essential items are:

   a. Caring attitudes.
   b. Initiative.
   c. Organisational ability.
   d. Potential to cope with stressful situations and undertake responsibility.
e. Trust worthiness and reliability.
f. To understand and communicate intelligibly with patients and others.
g. To behave in a manner that establishes professional relationships with patients and colleagues.
h. Ability to work in team.
i. A critical enquiring approach to the acquisition of knowledge.
The methods used mainly consist of observation. It is appreciated that these items require a degree of subjective assessment by the guide, supervisors and peers.

2. Acquisition of Knowledge: The methods used comprise of “Log Book” which records participation in various teaching / learning activities by the students. The number of activities attended and the number in which presentations are made are to be recorded. The log book should periodically be validated by the supervisors. Some of the activities are listed. The list is not complete. Institutions may include additional activities, if so desired.

Journal Review Meeting (Journal Club): The ability to do literature search, in depth study, presentation skills, and use of audio-visual aids are to be assessed. The assessment is made by faculty members and peers attending the meeting using a checklist (see model checklist - I, chapter IV)

Seminars / Symposia: The topics should be assigned to the student well in advance to facilitate in depth study. The ability to do literature search, in depth study, presentation skills and use of audio-visual aids are to be assessed using a checklist (see model checklist - II, chapter IV)

Clinico-pathological conferences: This should be a multidisciplinary case study of an interesting case to train the candidate to solve diagnostic and therapeutic problems by using an analytical approach. The presenter(s) are to be assessed using a check list similar to that used for seminar.

Medical Audit: Periodic morbidity and mortality meeting be held. Attendance and participation in these must be insisted upon. This may not be included in assessment.

3. Clinical skills:

Day to Day work: Skills in outpatient and ward work should be assessed periodically. The assessment should include the candidates' sincerity and punctuality, analytical ability and communication skills (see model checklist III, chapter IV).

Clinical meetings: Candidates should periodically present cases to his peers and faculty members. This should be assessed using a check list (see Model checklist IV, chapter IV).

Clinical and Procedural skills: The candidate should be given graded responsibility to enable learning by apprenticeship. The performance is assessed by the guide by direct observation. Particulars are recorded by the student in the log book. (Table No 3, Chapter IV)
4. **Teaching skills:** Candidates should be encouraged to teach undergraduate medical students and paramedical students, if any. This performance should be based on assessment by the faculty members of the department and from feedback from the undergraduate students (See model checklist V, Chapter IV)

5. **Dissertation in the Department:** Periodic presentations are to be made in the department. Initially the topic selected is to be presented before submission to the University for registration, again before finalisation for critical evaluation and another before final submission of the completed work (See model checklist VI & VII, Chapter IV)

6. **Periodic tests:** The departments may conduct three tests, two of them be annual tests, one at the end of first year and the other in the second year. The third test may be held three months before the final examination. The tests may include written papers, practical / clinical and viva voce.

7. **Work diary/Log Book:** Every candidate shall maintain a work diary and record his/her participation in the training programmes conducted by the department such as journal reviews, seminars, etc. Special mention may be made of the presentations by the candidate as well as details of clinical or laboratory procedures, if any conducted by the candidate.

8. **Records:** Records, log books and marks obtained in tests will be maintained by the Head of the Department and will be made available to the University or MCI.

**Log book**

The log book is a record of the important activities of the candidates during his training. Internal assessment should be based on the evaluation of the log book. Collectively, log books are a tool for the evaluation of the training programme of the institution by external agencies. The record includes academic activities as well as the presentations and procedures earned out by the candidate.

**Format for the log** book for the different activities is given in Tables 1, 2 and 3 of Chapter IV. Copies may be made and used by the institutions.

**Format for PG Diary (Log Book)**

1. Cases seen on rounds — description of interesting cases and other miscellaneous topics discussed.
2. Outpatient cases seen and details of interesting cases with follow up.
3. Procedures done on inpatients and outpatients and consultation done
4. Undergraduate teaching done during the day with details.
5. PG training programmes attended — details of bedside clinics, basic sciences, subject and clinical seminars, Journal clubs, mortality meet and hospital conference.
6. Night duties — details of patients managed and emergencies,
consultation. Ward calls attended.

7. Details of study with topics covered during off hours in library / home. Periodicals and Journals reviewed with notes on interesting articles.

8. Medical meetings, Seminars, Local API / CSI meetings or other interesting CME, seminars attended.

9. Diary should be reviewed on weekly basis by unit faculty and certified on monthly basis for P.G.’s benefit at the end of each Medical/speciality rotation. Faculty should comment regarding absences and irregularities (Late arrivals and early departure) and make appropriate comments and suggest remedial measure for problematic prodigies.

10. Size of note book: 15 cm with 200 pages. All note books should have seal of college and H.O.D.s approval: Extra note books may be utilised as and when necessary. Diaries should be presented at the time of University clinical exam for review by examiners as per University regulations.

**Procedure for defaulters:** Every department should have a committee to review such situations. The defaulting candidate is counseled by the guide and head of the department. In extreme cases of default the departmental committee may recommend that defaulting candidate be withheld from appearing the examination, if she/he fails to fulfill the requirements in spite of being given adequate chances to set himself or herself right.

**Internal evaluation of P.G. Students performance during three years**

**Ist Year of M.D. (TB & Respiratory Medicine) Students**

Assessment of students with multiple choice questions multiple short notes covering wide range of topics and practical examination with attention to history taking, clinical skills, relevant diagnostics and therapeutic plans ascertained. Suggested time of evaluation after first six months and at the end of first year rotation.

**IIInd Year of M.D. (TB & Respiratory Medicine) Students**

Students should be evaluated at the end of II year on Theory and Practical examinations along with one faculty from General Medicine. For other specialties with short rotations of one month may evaluate the candidate for comprehension of the subject and clinical skills.
III Year of M.D. (TB & Respiratory Medicine) Students

P.G's should be evaluated at the beginning of his 3rd year training by panel of senior Postgraduate teachers. Suggested pattern of assessment with two essay type theory papers and multiple choice questions (200) — clinical skills, diagnostic and therapeutic skills evaluated intermittently by unit faculties.

Mock examination suggested — 3 to 4 months prior to final university exam should consist of two question papers each 3 hours duration, and Clinical and viva voce similar to university examination under the supervision of senior faculty.

Results of all evaluations should be entered into P.G's diary and departmental file for documentation purposes. Main purpose of periodic examination and accountability is to ensure clinical expertise of students with practical and communication skills and balance broader concept of diagnostic and therapeutic challenges.

Scheme of Examination

Candidates will be allowed to appear for examination only if attendance (minimum 80%) and internal assessment are satisfactory and dissertation is accepted.

A. **Theory (Written Papers) 400 marks**

There shall be four question papers, each of three hours duration. Each paper shall consist of two long essay questions each question carrying 20 marks and 6 short essay questions each carrying 10 marks. Total marks for each paper will be 100. **Questions on recent advances may be asked in any or all the papers.** Details of distribution of topics for each paper will be as follows:

- **Paper I:** Basic Sciences including Anatomy and Physiology pertaining to Respiratory System
- **Paper II:** Non Tubercular Respiratory infectious Diseases and General Medicine
- **Paper III:** Tuberculosis - Pulmonary and extra pulmonary
- **Paper IV:** Non infectious diseases of lung

**Note: The distribution of chapters / topics shown against the papers are suggestive only.**
B. Clinical Examination: 200 marks

To elicit competence in clinical skills and to discuss differential diagnostic therapeutic aspects

One Long case — 100 marks

Two Short cases- 2 X 50 marks - one of the cases may be from General Medicine like Diabetes Mellitus, Cirrhosis, simple mitral stenosis etc.

C. Viva Voce Examination 100 marks

Aims to elicit candidates knowledge and investigative / therapeutic skills.

Viva-voce examination: (80 marks)

All examiners will conduct viva-voce conjointly on candidate's comprehension, analytical approach, expression and interpretation of data. It includes all components of course contents. In addition candidates may be given case reports, charts, Spirometry, ABG, gross specimens, histo-pathology slides, x-rays, ultrasound, CT scan images, etc., for interpretation and questions on these as well as use of instruments will be asked. It includes discussion on dissertation also.

Pedagogy Exercise: (20 marks)

A topic be given to each candidate in the beginning of clinical examination.

He/she is asked to make a presentation on the topic for 8-10 minutes.

D. Maximum marks

<table>
<thead>
<tr>
<th>THEORY</th>
<th>PRACTICAL</th>
<th>VIVA</th>
<th>GRAND TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>400</td>
<td>200</td>
<td>100</td>
<td>700</td>
</tr>
</tbody>
</table>
ANNEXURE - I

JOURNALS

- Year/month upto which Indian Journals available --
  1. Indian Jl of Chest Diseases and Allied Sciences (Q)
  2. Indian Jl of Tuberculosis (Q)
  3. Asian Journal of critical care

- Year/month upto which Foreign Journals available
  1. American Jl of Respiratory and Critical Care Medicine (F)
  2. Tuberculosis (BM)
  3. Clinics in Chest Medicine (Q)
  4. Infectious disease clinics of North America (Q)
  5. Immunology and Allergy clinics
  6. Journal of Critical care
  7. Journal of infectious diseases
  8. Chest (BM) New

- List of Online Peer Review Journals:-
  2. Applied Cardiopulmonary Pathophysiology
  3. Archivos de Bronconeumolog?a (English)
  4. BMC pulmonary medicine
  5. Canadian respiratory journal : journal of the Canadian Thoracic Society
  6. Chest
  7. Chest Disease Reports
  8. Clinics In Chest Medicine
  9. European respiratory journal
  10. European respiratory review
  11. Experimental lung research
  12. Heart Views
  13. Indian journal of chest diseases and allied sciences
  14. Indian journal of tuberculosis
  15. Internet Journal of Pulmonary Medicine
  16. ISRN Pulmonology
  17. Jornal Brasileiro de Pneumologia
  18. Jornal de pneumologia
  19. Lung
  20. Lung India
  21. The Open Lung Cancer Journal
  22. PVRI Review
  23. Respirology
  24. Revista Chilena de Enfermedades Respiratorias
  25. Revista Portuguesa de Pneumologia
26. RT: The Journal for Respiratory Care Practitioners
27. Thorax