

M.D. IN  
Pathology

## **CURRICULUM FOR POST GRADUATE COURSE IN PATHOLOGY**

### **M.D. IN PATHOLOGY**

#### **GOAL :**

The goal of postgraduate medical education shall be to produce competent specialist.

- (i) Who shall recognize the health needs of the community and carry out professional obligation ethically and in keeping with the objectives of the national health policy;
- (ii) Who shall have mastered most of the competencies, retaining to the speciality, that are required to be practiced at the secondary and tertiary levels of the healthcare delivery system.
- (iii) Who shall be aware of contemporary advances and developments in the discipline concerned.
- (iv) Who shall have acquired a spirit of scientific inquiry and oriented to the principles of research methodology and epidemiology ;and
- (v) Who shall have acquired the basic skills in teaching of the medical and paramedical professionals.

#### **OBJECTIVES :**

At the end of the course a candidate must be able to

- (i) Understand and explain about the factors in causation of disease.
- (ii) Understand processes involved in the gross and microscopic changes of organs and tissues and explain these changes.
- (iii) Understand and explain the basis of evolution of clinical signs and symptoms.
- (iv) Should be able to perform procedures designated for laboratory detection of diseases. Should be able to process and accurately interpret the representative materials obtained from the patients in order to arrive at a correct diagnosis.
- (v) Should be able to recognize and report morphological changes in cells, tissues and organs.
- (vi) Should be able to plan, perform and report specific research projects.
- (vii) Should be able to perform clinical autopsy and present CPC (Clinico Pathological Correlation )

## **METHODS OF TRAINING**

Duration of course – 3 years.

### **1. On job training**

- Histopathology including techniques and reporting
- Cytology including FNAC ,fluid cytology ,exfoliative cytology- techniques and reporting
- Haematology including blood banking and transfusion medicine- techniques and reporting
- Clinical pathology- techniques and reporting
- Museum techniques
- Autopsy techniques and interpretation
- Serology- techniques and reporting
- Handling of hazardous material
- Handling, maintenance and calibration of instruments used in laboratory
- Undergraduate teaching

### **2.P.G. Teaching sessions**

- Journal review
- Subject seminar
- Grossing discussions for autopsies and surgical material
- Slide seminar including histopathology ,haematology, and cytopathology
- Clinical case- group discussion
- Interdepartmental seminars

Post graduate students should be encouraged to attend CME, Workshops, Conferences & present papers.

## **TEACHING /LEARNING CONTENT**

### **A. THEORY**

#### **I BASIC SCIENCES**

1. Anatomy/histology of all structures in human body/organs
2. Physiology and biochemistry-Basic aspects of various metabolism and functioning of endocrines
3. Genetics-Fundamental / applied aspects
4. Biostatistics
5. Biomedical ethics-ethical issues related to Medical practice and research

#### **II PATHOLOGY**

1. Historical aspects
2. General pathology
3. Systemic pathology
4. Haematology
5. Blood banking and Transfusion Medicine
6. Cytopathology
7. Clinical Pathology
8. Medical autopsy: Techniques and interpretation
9. Recent advances in all fields ,related to Pathology
10. Organization of laboratory including quality control

### III CLINICAL BIOCHEMISTRY

Routine biochemical investigations and various organ function tests i.e. LFT ,RFT etc.

#### B. PRACTICAL

Proficiency of technological methods should include the following:

1. Fields in which high degree of professional competence and theoretical knowledge is expected:-
  - a) Gross pathology and histopathology
  - b) Haematology
  - c) Cytopathology
  - d) Clinical pathology and Blood banking
  
2. Fields in which student is expected to achieve reasonable working knowledge and skills to be able to run laboratory services independently
  - a) Clinical chemistry
  - b) Serology
  
3. Fields in which student is expected to achieve general acquaintance of techniques to understand and interpret data
  - a) Immunopathology
  - b) Histochemistry
  - c) Immunohistochemistry
  - d) Cytogenetics
  - e) Molecular biology
  - f) Medical statistics

#### POSTING SCHEDULE:

1) Histopathology and Autopsy	:-	15 months
2) Clinical pathology	}	:- 15 months
Haematology		
Cytopathology		
Blood Bank		
3) Biochemistry	:-	1 month
4) Serology	:-	15 days
5) Museum	:-	15 days
6) Revision in all sections	:-	4 months
<b>TOTAL</b>		<b>36 months</b>

#### RECOMMENDED MINIMUM TEXT BOOKS AND JOURNALS

## **BOOKS:**

- 1 Cotran, Kumar, Collins. Robin's Pathologic Basis of Disease, published by W.B. Saunders & Company.
- 2.Ivan Damjanov, James Linder. Anderson's Pathology, published by C.V. Mosby Company.
3. J. B. Walter, M.S. Israel. General Pathology, published by Churchill Livingstone.
4. Emeritus W.ST. Symmers Systemic Pathology, published by Churchill Livingstone.
5. Juan Rosai, Ackerman's Surgical Pathology, published by C.V. Mosby Company.
6. Leopold G Koss, Diagnostic cytology and its histopathologic basis published by J.B. Lippincott Company.
7. Marluce Bibbo, Comprehensive cytopathology, published by W.B Saunders Company
8. Winnifred Grey, Diagnostic cytopathology, published by Churchill Livingstone
9. Orell, Sterrett- Walters and Whittaker, Fine Needle Aspiration Cytology (Manual & Atlas), published by Churchill Livingstone
- 10.Greer J.P, Foerster J,Jukens J et. al Wintrobe's Clinical Haematology, published by Lippincott Williams and Wilkins
11. Firkin F , Chesterman C, Penington D, de Gruchy's Clinical Haematology in Medical Practice, published by Blackwell Sciences
12. Henry J.B Clinical Diagnostics and Management by Laboratory Methods. published by W.B. Saunders & Company.
13. Lewis S.M, Bain D.J, Bates I, Dacie & Lewis Practical Haematology published by Churchill Livingstone.
14. Hoffbrand A.V, Catovsky D, Tuddenham G.D, Postgraduate Haematology – published by Blackwell publishing
- 15 R.Anantnarayan , C.K.Paniker, Textbook of Microbiology , published by Orient Longman.
16. Harshmohan ,Textbook of pathology , published by Jaypee.
17. Parasitology ( Protozoology & Helminthology.) in relation to clinical medicine – K.D.Chatterjee – published by Chatterjee Medical Publication.

18. Sudha R.Kini ,Colour Atlas of differential diagnosis in exfoliative and aspiration cytopathology , published by Lippincott, Williams & Wilkins.
19. Praful B. Godkar ,Clinical Biochemistry – Principles & practice , published by Bhalani Publishing House, Bombay.
20. Theory & practice of Histological Techniques edited by John .D.Bancroft- published by Chruchill Livingstone.
21. Enzinger & Weiss, Soft Tissue Tumours, Published by B.I.Publications (India.) C.V.Mosby company.
22. Elder D.E, Lever’s Histopathology of the skin – Published by J.B.Lippincott Company.
23. Novak & Woodruff Edited, Novak’s Gyanaecologic and Obsteric Pathology, published by – Kiaku Shoin/Saunders.
24. Christopher D.M. Fletcher, Diagnostic Histopathology of Tumours Vol.1 & 2- published by Chruchill Livingstone.
25. Recent advances in Histopathology, Haematology, Blood coagulation etc.
26. AFIP, Atlas of tumour pathology.
27. Interpretation of Breast Biopsies - Carter
28. Day D.W, Jass J.R, Price A.B, Morson and Dawson’s Gastrointestinal Patholgy, published by Blackwell publishing .
29. Ellison D, Love S, Chimelli L et. al, Neuropathology , published by Mosby
30. Epstein Prostate Biopsy Interpretation, published by Lippincott- Raven
31. Fogo A.B,Kashgarian M, Diagnostic Atlas of Renal Pathology, published by Elseiver Saunders
32. Foster C.R, Pathology of the Urinary Bladder, published by Saunders
33. Fox H, Wells M ,Haines & Taylor - Obstetric and Gynaecological Pathology, published by Chruchill Livingstone
34. Ioachim H.L,Lymphnode Pathology, published by Lippincott
35. Kilpatrick, Renner, Diagnostic Musculoskeletal Surgical Pathology, Clinicoradiologic & cytologic correlations,published by Saunders
36. Kurman R.J, Blaustein’s pathology of the female genital tract, published by Springer
37. LeslieK.O,Wick M.R, Practical pulmonary pathology; a Diagnostic approach, published by Churchill Livingstone
38. MacSween, Butt, Portman et al,Pathology of the liver- published by Churchill

Livingstone

39. Mills S.E, Sternberg's diagnostic surgical pathology, published by Lippincott Williams and Wilkins
40. Montgomery E.A, Biopsy interpretation of the Gastrointestinal Tract Mucosa, published by Lippincott Williams and Wilkins
41. Odze R.D, Surgical pathology of the GI Tract, Liver, Biliary Tract and Pancreas, published by Saunders
42. Owen D, Pathology of the Gall Bladder , Biliary Tract, and Pancreas, published by Saunders
43. Pilch B.Z, Head and Neck surgical pathology, published by Lippincott Williams and Wilkins
44. Rosen P, Pathology of Breast, published by Lippincott Williams and Wilkins
45. Silverberg S.G, Atlas of Breast pathology, published by Saunders
46. Weedon ,Skin Pathology, published by Churchill Livingstone
47. Wickremsinghe, Blood and Bone marrow pathology, published by Churchill Livingstone
48. Atkinson B, Atlas of diagnostic pathology, published by Saunders
49. Cibas E.S, Cytology:Diagnostic principles and clinical correlates, published by Saunders
50. Geisinger, Modern cytopathology
51. Naib Z.M,Cytopathology, published by Little Brown and company
52. Meisels A, Morin C, Cytopathology of the uterine Cervix, published by ASCP Press
- 53.Miettinen M,Diagnostic soft tissue pathology, published by Churchill Livingstone
54. Chandler F.W,Pathologic diagnosis of fungal infection,published by ASCP Press
55. Collins R.D, Paediatric Haematopathology, published by Churchill Livingstone
56. Hoffman , Benz, Shattil,Haematology :Basic principles and practice,published by Churchill Livingstone
57. Naeim F, Atlas of bone marrow and blood pathology, published by W. B Saunders
58. Tkachuk D.C,Atlas of clinical haematology, published by Saunders
59. WHO Classification of tumours, published by IARC Press.
60. Mollison P.L, Blood transfusion in clinical medicine, published by Oxford, ELBS & Blackwell Scientific Publication
61. Chitale A, Pathology of urinary & male genital system for urologists, general surgeons & Pathologists published by B.I. Publications
62. Saran R.K., Transfusion medicine technical manual, published by WHO

**JOURNALS:**

1. British Journal of Haematology, published by Blackwell Sciences.
2. CANCER, International journal of American Cancer Society, published by John Wiley & Sons Inc.
3. Journal of Clinical Pathology, published by B.M.J.
4. Haematology/Oncology Clinics of North America, published by W.B. Saunders & Company.
5. American Journal of Surgical Pathology, published by Lippincott & Raven
6. Indian Journal of Pathology & Microbiology, published by IAPM.
7. Indian Journal of Cancer, published by Indian Cancer Society.
8. Indian Journal of Cytology, published by IAC.
9. LANCET published by Elsevier
10. I.C.M.R. Bulletin, published by ICMR
11. Histopathology , journal of the British Division of the International Academy of Pathology-Published by Blackwell Science
12. Acta Cytologica, The Journal of Clinical Cytology and Cytopathology
13. Archives of Pathology and Laboratory Medicine-Published by American Medical Association
14. Human Pathology- Published by W.B. Saunders & Company.
15. American Journal of Clinical Pathology published by ASCP
16. Indian Journal of Cytology
17. WHO Bulletin published by WHO
18. Indian Journal of Urology
19. Modern Pathology
20. Indian journal of Leprosy published by Indian Leprosy Association
21. New England Journal of Medicine published by Massachusetts Medical Society

**ADDITIONAL READINGS:**

1. Compendium of recommendations of various committees on health and development ( 1943 to 1975) DGHS, 1985 Central Bureau of Health Intelligence, DGHS, Ministry of Health & Family Welfare, Govt. of India, Nirman Bhavan, New Delhi-335.



2. National Health Policy, Ministry of Health & Family Welfare, Govt. of India, Nirman Bhavan, New Delhi-335. 1983.
3. ICMR, Policy, Statement of ethical considerations involved in research on Human subjects, 1982 ICMR, New Delhi.
4. Code of Medical Ethics framed under Section- 33 of Indian Medical Council Act , 1956 . MCI, Kotla road, New Delhi.
5. Santosh Kumar, The elements of Research ,writing and editing 1994,Dept. of Urology,JIPMER,Pondicherry
6. Srinivas D.K et al ,Medical Education Principles and Practices,1995.National Teacher Training Centres, JIPMER, Pondicherry
7. Francis C.M Medical Ethics, J.P.Publication,Banglore 1993
8. Indian National Science Academy, Guidelines for care and use of animals in scientific research, New Delhi,1994
9. International Committee of Medical Journal Editors, Uniform Requirements for manuscripts submitted to biomedical journal. N. Engl J Med 1991;424-8
- 10.Kirkwood B.R. Essentials of Medical Statistics, 1<sup>st</sup> ed. Oxford Blackwell Scientific Publications 1988
- 11.Mahajan B.K.Methods in Biostatistics for medical students,5<sup>th</sup> ed New Delhi, Jaypee Brothers Medical Publishers,1989
- 12.Raveendran B. Gitanjali, A Practical Approach to PG dissertation, New Delhi.J.P Publications 1998.

MAHARASHTRA UNIVERSITY OF HEALTH  
SCIENCES, NASHIK

Student's Record Book

M.D (Pathology)

DEPARTMENT OF PATHOLOGY

Name of the Student :

Dr. \_\_\_\_\_

Name of the Institute & Address:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## **ABOUT THE LOG BOOK:**

The log book has been prepared to maintain a record of academic and service activities of postgraduates and to provide an account of progress made by him/her. Maintenance of such log books will also allow a review of training programme and incorporation of improvements in the programme.

Postgraduates are required to carry the log book and get the entries made regularly. Faculty is requested to countersign. Log books have to be submitted to the head of the department before submitting the final examination form.

**PERSONAL BIO-DATA**

Paste  
Passport size  
Photograph  
here

Name of the Student : \_\_\_\_\_

Date of joining : \_\_\_\_\_

Probable date of appearing  
for Examination : \_\_\_\_\_

Date of Birth : \_\_\_\_\_

M.B.B.S from : \_\_\_\_\_

Year of passing MBBS : \_\_\_\_\_

Name of the State : \_\_\_\_\_

Medical Council : \_\_\_\_\_

Registration No.  
with date : \_\_\_\_\_

Permanent Address : \_\_\_\_\_  
\_\_\_\_\_ PIN- \_\_\_\_\_

Phone No. : ( ) \_\_\_\_\_

Local Guardian's  
Address : \_\_\_\_\_  
\_\_\_\_\_ PIN \_\_\_\_\_

Phone No. : ( ) \_\_\_\_\_  
\_\_\_\_\_

**POSTING SCHEDULE :**

<b>SECTION</b>	<b>MONTH &amp; YEAR</b>		<b>REMARKS</b>	<b>SIGNATURE OF SECTION I/C</b>
	<b>From...</b>	<b>To.....</b>		
<b>Clinical Pathology</b>				
<b>Cytopathology</b>				
<b>Haematology</b>				
<b>Blood Banking</b>				
<b>Histopathology</b>				
<b>Autopsy</b>				
<b>Biochemistry</b>				
<b>Serology</b>				
<b>Museum</b>				
<b>Revision in all sections</b>				



## PARTICIPATION IN P.G. TEACHING ACTIVITY

**Subject Seminars presented:**

<b>Date</b>	<b>Topic</b>	<b>Remarks</b>	<b>Signature of faculty</b>

**Journal Articles presented:**

<b>Date</b>	<b>Topic</b>	<b>Remarks</b>	<b>Signature of faculty</b>



**Group discussion of clinical cases:**

<b>Date</b>	<b>Topic</b>	<b>Remarks</b>	<b>Signature of faculty</b>

**Slide Seminars presented/participated:**

<b>Date</b>	<b>Topic</b>	<b>Remarks</b>	<b>Signature of faculty</b>

## SCIENTIFIC CONTRIBUTIONS

### CME/ Workshops attended :

SN	Name of CME/ Workshop	Held at	Dates

### Conferences attended :

SN	Name of Conference	Paper presented Yes/No	If yes, title of paper

### Publications:

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_

### Awards:

\_\_\_\_\_

**CERTIFICATE**

**This is to certify that Dr.....**

**has completed the tenure for M.D. satisfactorily .**

**P.G.Teacher.**

**P.G.Teaching  
Programme Incharge**

**Professor & Head.  
Department of pathology**

## **EVALUATION SYSTEM**

### **A. DISSERTATION**

**a)** Thesis / Dissertation is compulsory. Every candidate is required to carry out the work on a selected research project under the guidance of a recognized post graduate teacher. The results of such work shall be submitted in the form of a Dissertation.

**b)** The Dissertation is aimed at training the candidate in research methods and techniques. It includes identification of a problem , formulation of a hypothesis , search and review of relevant literature , getting acquaintance with recent advances, designing of research study , collection of data , critical analysis of results and drawing conclusions.

**c)** The title of the topic along with the plan of work not exceeding 500 words in prescribed proforma should be submitted to the University with the recommendation of guide through proper channel within a period of 3 months from the date of registration for the postgraduate course. There should not be an overlap of topic, cases, material or the related data among the candidates within the department during the period of actual Dissertation work. Prior approval by the local Ethical Committee is essential .

Unless communicated otherwise within a period of 2 months from the date of receipt of plan of work by University, it shall be assumed that topic of Dissertation is approved and no communication is necessary in this regard. The last date for submission will not be extended without prior permission from the University. In case of delay in submission of topic of Dissertation and plan of work , the period of training of the candidate will be proportionately extended for which the entire responsibility shall be upon the candidate .

**d)** The volume of the Dissertation should be reasonable and may vary depending on the topic. The bibliography should be as per Vancouver system.

**e)** Four copies of the Dissertation complete in all respect certified by the guide should be submitted to the University through proper channel 6 months before the final examinations to the registrar (evaluation)

**f)** The identity of the candidate/ teacher/ Department /College / Place should not be disclosed in the Dissertation .Acknowledgement should not be included in the Dissertation.

**g)** Certificates issued by guide, countersigned by Head of the Department and the Dean certifying therein that the work done by the candidate has been carried out under the supervision of the guide to his/her entire satisfaction, should be submitted separately to the University.

**h)** Dissertation approval is a prerequisite for appearing at the University exam. In case the Dissertation is not accepted, the same shall be communicated to the candidate along with reasons for rejection at least 2 months prior to the commencement of theory exam.

**i)** The candidate may make necessary corrections and resubmit the Dissertation at least 1 month prior to the commencement of theory exam.

**B. LOG BOOK (Work diary)**

The postgraduate students should include all their activities in the log book. The annual assessment based on the work diary shall be done by the guide, teacher in charge of postgraduate teaching programme and HOD.

**C. UNIVERSITY EXAMINATION (*As per Direction No. 01/2008 dtd. 26/05/2008*)**