Curriculum for

Post-Doctoral Fellowship Course

in

 Onco Pathology

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**SRI AUROBINDO UNIVERSITY**

SAIMS HOSPITAL CAMPUS, Indore Ujjain, State Highway, Bhawrasla, Indore, Madhya Pradesh 453555

**Post-Doctoral Fellowship in Oncopathology**

The course is aimed to provide a comprehensive understanding of the pathology of neoplastic diseases, with an emphasis on diagnosis and reporting to help in multidisciplinary care. It also aims to provide an overview of the molecular advancements and promote participation in research in the field.

Department of Pathology at SAIMS & PGI, Indore has energetic, dynamic and academically excellent full time faculty members actively engaged in undergraduate and post graduate teaching, research work, publications, blood banking and laboratory reporting. The pathology lab is fully equipped with automation in hematology, coagulation, histopathology, and clinical pathology.

Department is actively engaged in reporting of all types of histopathology, cytology and hematology samples with availability of frozen section for intraoperative reporting, cytospin and liquid base cytology (LBC) for body fluids and Pap smears, flowcytometer for immunophenotyping of leukemias and lymphomas. Fully automated immunohistochemistry set up with widest range of IHC markers for typing and prognosis of solid tumours. Blood bank is licensed and completely equipped to prepare and provide whole blood, all types of components including platelet apheresis, plasma pheresis and actively engaged in stem cell transplantation. For post graduate training in pathology, the department has unique blend of state of art, advanced fully equipped central clinical laboratory with high volume of clinical samples. Collection of more than 8000 slides of histopathology, cytology and bone marrow of various diseases and more than 500 wet specimens of all types of surgeries, systems and autopsies. Pentahead, decahead and fluorescence microscopes with digital cameras for post graduate teaching and reporting.

Department is actively engaged in interdepartmental teaching with combined seminars, case discussions, tumour board meetings and monthly Clinico-Pathology club meetings for faculties and Post graduate residents of all broad and super-specialty subjects.

1. **Goal & Objectives of the program**

**a) Program goal**

The course aims to coach, mould & mentor a specialist in oncopathology capable of competent ethical practice individually or as a part of a multidisciplinary team to further patient care & medical research.

1. **b) Program objectives**

**A) Knowledge**

1) At the completion of course he/she shall acquire high standard of theoretical knowledge for the competent practice of oncopathology.

2) The candidate shall be conversant with the recent developments in knowledge, concepts & practice of oncopathology.

3) The candidate shall be proficient in teaching & mentoring of various categories of medical professionals.

4) The candidate shall develop an attitude & aptitude for ethical independent clinical & laboratory based scientific research.

**B) Skills**

1) He/she shall provide a comprehensive oncopathology report encompassing points relevant for diagnosis, staging, prognosis & theranostics.

2) He/she shall be able to engage with clinical counterparts as part of Multidisciplinary Tumour Board (MTB) team.

3) He/she shall acquire the necessary skills for planning, organizing, establishing, supervising of an oncopathology centre.

4) He/she shall acquire necessary skills and practices to conduct fundamental & applied research & evolve as an independent researcher.

5) He/she shall be able to seek, analyse scientific literature on oncopathology, update concepts & practice evidence based medicine.

6) He/she shall exhibit communication skills of high order whilst engaging with colleagues, subordinates & patients.

1. **Eligibility criteria, course duration & selection process**

**A) Eligibility criteria**

Any candidate of Indian nationality who has successfully completed his MD/DNB in Pathology or its equivalent from a MCI recognised university in India and is registered with the state/Indian medical council is eligible for this course.

Students pursuing their MD/DNB in pathology are eligible for the course subject to their fulfilling the eligibility criteria & successful completion their MD/DNB course within 1 month (30 days) of issue of fellowship notification.

 **B) Course duration**

The course duration is of one year (12 months) duration.

Every candidate admitted to the fellowship program shall pursue a diligent course of study on a full-time basis in the concerned department under the guidance of assigned teacher/consultant for a period of one year (12 months).

Candidates pursuing fellowship will be considered as Senior resident (Full time) with teaching experience.

Private practice is strictly prohibited during the course tenure.

1. **Program specific learning objectives & competencies**

The training program is designed to strengthen the basic & advanced knowledge of oncopathology practice, to acquire a capacity to learn and investigate, to synthesize and integrate knowledge and develop a faculty to reason & research.

The curricular program and scheduling of postings provide the student with opportunities to achieve the above broad objectives. The student is expected to complement as an integral part of the activities of an academic department that usually revolves around three equally important basic functions of teaching, service & research.

1. **A) Cognitive (Knowledge) domain**
	* + 1. 1) He/she shall be able to comprehend, interpret, diagnose & report surgical pathology & immunohistochemistry cases received in the laboratory.
			2. 2) He/she shall advice & interpret appropriate ancillary tests including immunohistochemistry.
			3. 3) He/she shall collate, correlate clinical & laboratory data so that the clinical & pathological manifestations & implications be explained.
			4. 4) He/she shall develop an aptitude for research and be able to independently plan, execute, & analyse research work.
			5. 5) He/she shall engage in post-graduate teaching program.
			6. 6) He/she shall be updated and strive for best practices in the laboratory including SOP, quality assurance, quality control, laboratory safety & waste disposal.
			7. 7) He/she shall be able to supervise the work delivered by subordinates & colleagues.
2. **B) Psychomotor (skill) domain**
	* + - 1. 1) He/she shall be able to critically inspect the surgical pathology specimen, dissect it, gross the specimen while noting critical anatomic features & submit appropriate sections for histological processing.
				2. 2) He/she shall be able to perform, process & interpret critical procedures & specimens such as cytology, frozen section, immunohistochemistry with reasonable competence.
				3. 3) He/she shall implement best practices in the laboratory including SOP, quality assurance, quality control, laboratory safety & waste disposal
3. **C) Affective domain**

 1) He/she shall function as part of a multidisciplinary team & develop an attitude of cooperation & team work.

 2) He/she shall empathise with the patient & respect his rights including that of confidentiality, second opinion & RTI whilst maintaining professional etiquettes &

 ethical values.

 **D. Syllabus**

The student should be able to demonstrate an understanding of the etiopathogenesis & patho-physiologic features associated with various cancers. The student should be able to identify and systematically and accurately describe the chief histomorphological alterations in the tissue received in the surgical pathology service. He/she should also correctly interpret and correlate with the clinical data to diagnose common malignancies, request appropriate ancillary tests & produce a comprehensive surgical pathology report.

* General aspects of cancer biology
* General aspects of cancer diagnosis including use of ancillary techniques including immunohistochemistry, special stains.
* General aspects of cancer staging including AJCC 8th edition, TNM staging & FIGO staging.
* General aspects of oncopathology reporting as per CAP/RCPath protocol
* Tumours of the Female reproductive organs
* Tumours of the Renal & Male genito-urinary system
* Tumours of Bone & soft tissue
* Hematopoietic & Haemato-lymphoid malignancies
* Tumours of the skin & adnexa
* General aspects of special anciliary diagnostic techniques including fluorescent microscopy.
* General aspects of Laboratory safety, Quality control, Accreditation & waste disposal

**E. Teaching and Training Topics**

Candidates joining the fellowship program shall work as “Full-time residents” during the course tenure with a minimum attendance of 80% (eighty percent).

A structured training program with rotatory posting in each tumour cluster/disease management group is provided for along with regular didactic lectures, seminars, journal club, slide/gross seminars.

1) Subject seminar – Once a week.

2) Journal club – Once a week.

3) Case discussion/Slide/Gross seminar – Once a week.

4) Clinico-pathological meet – Once a month

5) Day to day case discussion during reporting of slides.

6) Exposure to:

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| * Grossing & Frozen section
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| * Head & Neck pathology
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| * Gynaecological pathology
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| * Breast pathology
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| * Lung & mediastinal pathology
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| * Gastrointestinal tract & hepatobiliary pathology
 |
| * Renal & genitourinary pathology
 |
| * Bone, soft tissue & paediatric pathology
 |
| * Hemato-lymphoid pathology
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| * Orientation, Quality control, Quality assurance & Laboratory safety
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 **F. Research activities & collaboration with other department/institutes**

 A) Every candidate shall endeavour on an assigned short research project/topic under

 the guidance of a consultant & institutional ethical committee clearance.

 B) The purpose of research is to develop an attitude & aptitude for research, identify a

 relevant research question, critical review of literature, formulate hypothesis, determine

 the suitable study design, prepare a study protocol, undertake study, collect & collate

 data, analyse & interpret data, draw conclusion.

 C) Fellows will be posted in the departments to get acquainted with the techniques &

 practice of medical oncology, radiation oncology, paediatric oncology, molecular

 pathology as part of research initiative. The student is encouraged to actively collaborate

 & engage in the interdepartmental research projects and activities.

1. D) There will be periodic appraisal of research work.
2. E) The research project shall be submitted for publication & is a mandatory prerequisite to be eligible to appear for the fellowship exit examination.

**G. Ethics & medico-legal aspects**

A) He/she shall function as part of a multidisciplinary team & develop an attitude of cooperation & team work.

B) He/she shall empathise with the patient & respect his rights including that of confidentiality, second opinion & RTI whilst maintaining professional etiquettes & ethical values.

C) He/she shall practice ethical evidence based medicine.

**H. Log Book**

A candidate shall maintain a log book diligently recording the academic activities undertaken during the course tenure and be certified by the concerned consultant/head of tumour cluster, it is mandatory that this log shall be made available to the board of examiners during the final examination.

The log book shall contain the details of postings, procedures performed, seminar presentations, slide/gross seminars, journal presentation, teaching assignments, case presentations in CPC meets, lectures(including guest lectures) attended, CME/conference attended, poster/oral paper presentations, awards won, research & publication details. A candidate shall maintain a log book of procedures (assisted / performed) during the training period, certified by the concerned post graduate teacher / Head of the department / senior consultant.

This log book shall be made available to the examiners for their perusal at the time of the final examination.

Details to be entered:

1. Personal profile of the candidate
2. Educational qualification/ Professional data
3. Record of case histories
4. Procedures learnt
5. Record of case Demonstration/Presentations

**I. Examination**

**A) Eligibility to appear for examination:**

1) Attendance: At least 80%.

2) At least one Poster or Oral paper presentation at a state or national level conference.

3) Research paper sent/accepted for publication.

4) Log book of daily activities to be countersigned by the cluster head at the end of each sub specialty rotation.

1. **B) Examination (Evaluation) pattern:**
	* 1. Holistic assessment in the domains of knowledge, skills & attitude relevant to the subject.

 **Formative Assessment:**

1) Informal assessment during daily case discussion & sign out.

2) Informal assessment during seminars, journal presentations, case discussions, slide seminars & teaching activities.

3) Research activities.

4) Log book.

 **Summative Assessment:**

Will consist of Practical & viva voce (Total 200 marks): The modules will include,

1. Slides for interpretation including histopathology, cytology, immunohistochemistry & frozen section (100 marks)

2. Grossing of oncopathology specimen & other ancillary techniques (50 marks).

3. Viva voce (50 marks).

• Evaluation to be done by two (02) examiners.

• Internal examiner - 1 External examiner – 1.

• Grand total: Theory examination - 200 marks + Practical examination - 200 marks = 400 marks.

• Minimum for passing: At least 50% individually in theory & practical examination.

• Number of attempts: Three (03) attempts, course to be completed within two (02) years from the date of joining.

**J. REFERENCE LIST OF BOOKS & JOURNALS**

**General surgical pathology**

1. Robbins & Cotran, Pathological basis of disease; 10th Edition.

2. Fletcher, Diagnostic histopathology of tumours; 4th edition.

3. Sternbergs, Diagnostic surgical pathology; 6th Edition.

4. Rosai & Ackermans, Surgical pathology; 11th Edition.

5. Lester, Manual of surgical pathology; 3rd edition.

6. Silverberg, Principles and practice of Surgical Pathology & Cytopathology; 5th edition.

**Head & Neck Pathology**

1. Barnes, Surgical Pathology of the Head & Neck; Vol. 1-3. 3rd edition.

2. WHO classification of tumours of the head, neck & salivary glands, IARC press, Lyon;4th edition.

 **Breast pathology**

1. Tavassoli, Pathology & Genetics : Tumors of the breast & female genital organs.

2. Carter Darryl, Interpretation of Breast biopsies(Biopsy interpretation series);3rd edition.

3. Frances P. O’Malley, Sarah E. Pinder, Breast Pathology; 2nd edition.

4. WHO classification of tumours of the breast, IARC press, Lyon, 5th edition.

**Tumours of Lung, Pleura & Mediastinum**

1. Hravis, Pathology & Genetics tumors of the lung, pleura, thymus & Heart.

2. WHO classification of tumours of the lung, pleura, heart & mediastinum, IARC press, Lyon, 4th edition.

**Gastrointestinal tract & Hepatobiliary pathology**

1. Mac Sween, Pathology of the Liver; 4th edition.

2. Morson and Dawson, Gastro intestinal pathology; 5th edition.

3. Cecilia M. Fenoglio – Preiser, Gastrointestinal Pathology - an atlas and text; 3rd edition.

4. WHO classification of tumours of the gastrointestinal tract, IARC press, Lyon, 5th edition.

**Endocrine pathology**

1. De Lellis, Ronald A, Pathology & Genetics of tumor of endocrine organs.

2. WHO classification of tumours of the endocrine organs, IARC press, Lyon, 4th edition.

**Gynaecological pathology**

1. Robert J Karman, Blaustein’s pathology of the female genital tract; 5th edition.

2. Tavassoli, Pathology & Genetics of tumors of the breast & female genital organs.

3. WHO classification of tumours of the female genital tract, IARC press, Lyon, 4th edition.

**Renal & Genitourinary pathology**

1. Eble John N, Pathology & Genetic of tumor of the Urinary system and male genital organs.

2. Fogo, Diagnostic Atlas of Renal Pathology; 7th edition.

3. WHO classification of tumours of the kidney & male genitourinary system, IARC press, Lyon.

**Bone & soft tissue pathology**

1. Enzinger & Weiss’s Soft tissue tumours; 7th edition.

2. Fletcher, Pathology & Genetics of tumour of soft tissue & bone.

3. WHO classification of tumours of the Soft tissues & bone, IARC press, Lyon, 4th edition.

**CNS pathology**

1. Richard A Prayson, Neuropathology.

2. Prayson & Cohen, Practical differential diagnosis in Surgical Neuropathology.

3. Mathew J Sehniederjan, Daniel J. Brat, Biopsy Interpretation of the Central Nervous System.

4. Mc Lendon, Pathology of tumor of the central Nervous System.

5. WHO classification of tumours of the Central nervous system, IARC press, Lyon, revised 4th edition.

**Hematolymphoid & Lymph node pathology**

1. Jaffe, Pathology & Genetics of Tumor of Haematopoietic & Lymphoid tissues

2. Ioachim Harry L, Ioachim’s lymphnode Pathology; 4th edition.

3. Anthony S-Y-Leong, A pattern Approach to Lymph Node Diagnosis.

4. WHO classification of tumours of the hematolymphoid system, IARC press, Lyon, 4th edition.

**Pediatric pathology**

1. Stocker Thomas & J Dehner, Paediatric pathology.

**Dermatopathology**

1. LeBoit, Pathology & Genetics of skin tumor.

2. Elder David, Lever’s Histopathology of the skin; 10th edition.

3. McKees’s, Pathology of the skin.

4. WHO classification of tumours of the skin & adnexal structures, IARC press, Lyon, 4th edition.

 **Immunohistochemistry & ancillary techniques**

1. Dabbs, Diagnostic immunohistochemistry: Theranostic & Genomic applications, 6th edition.

2. Bancroft, Theory & Practical of Histologic Technique;5th edition.

**Grossing techniques**

1. Westra, Surgical pathology dissection: An illustrated guide, 2nd edition.

2. The tata memorial hospital grossing manual, 1st edition.

  **Journals**

1. American journal of Surgical Pathology.

2. Histopathology.

3. Diagnostic histopathology

4. International journal of surgical pathology.

5. The Journal of pathology.

6. Virchows archiv.

7. Human pathology.

8. Archives of pathology & lab medicine.

9. Modern pathology.

10. Acta neuropathologica.

11. American journal of pathology.

12. International journal of gynaecological pathology.

13. Cancer.

14. New England journal of medicine.

15. Nature.

16. Indian journal of pathology & microbiology.