



SHRI  
DHARMASTHALA  
MANJUNATHESHWARA  
UNIVERSITY

Ordinance Governing  
MD PATHOLOGY  
Curriculum 2019-20

**SHRI DHARMASTHALA MANJUNATHESHWARA UNIVERSITY**

(A State Private University established under the Shri Dharmasthala Manjunatheshwara University  
Act No 19 of 2018 of Government of Karnataka and Notification No. ED 261 URC 2018 dated 19th December 2018)

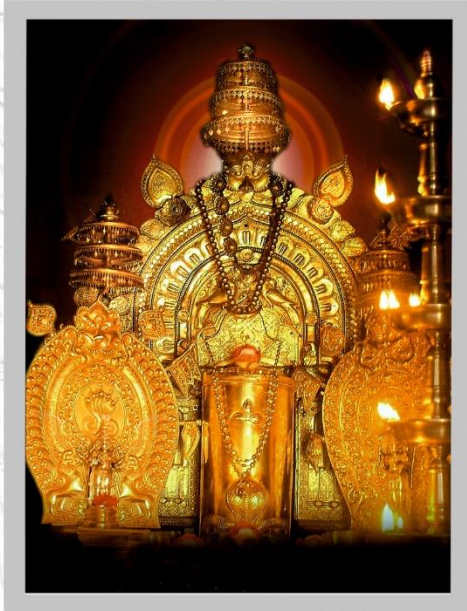
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|| Om Shri Manjunathaya Namaha ||



Shree Kshethra Dharmasthala

**Edition Year : 2019-20**

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## THE LOGO

Poojya Dr D. Veerendra Heggade, Hon'ble Chancellor of the University, while searching for an appropriate Logo for the University, saw a photograph picked from Temple Architecture showing Wings of a Bird, sculpted in Indian style and wanted it to be incorporated in the logo for the University, as the Wings symbolize 'Spreading of Knowledge beyond Boundaries'. Further it was felt that the Central theme of the logo should be 'Rudra' (The Linga) with three wings on each side. In this way, the logo of the University was conceptualized.

Hence:

1. The central part represents **Rudra** who Demolishes Darkness.
2. The Three **horizontal lines on The Linga** stand for Samyak Darshan (Right Belief), Samyak Gyan (Right Knowledge) and Samyak Charitra (Right Conduct).
3. The **Wings** symbolize spreading of Knowledge across the boundaries.
4. Base line **"Truth Liberates"** highlights the Purpose of Education: to liberate oneself unconditionally. It shows that it is not discipline, nor knowledge nor the efforts to freedom that liberate but Truth is what liberates you from all your conditioning and ignorance.

The overall significance of Shri Dharmasthala Manjunatheshwara University's Logo is:

**Darkness of ignorance is destroyed by the flow of knowledge to bring Liberty to everyone, by realizing the truth. And, it should spread globally without the boundaries as hindrance.**



SHRI  
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## VISION

Shri Dharmasthala Manjunatheshwara University will set the highest standards of teaching and learning by awakening the intelligence of the students and nurturing the creativity hidden in them by creating an environment where the ancient wisdom blends with modern science, to transform them into whole human beings to face the challenges.

## MISSION

- ▶ To ensure that the journey of education is inspiring, pleasant and enjoyable.
- ▶ Attract the best of teachers and students.
- ▶ Achieve high principles of trust, love and spirituality in the students.
- ▶ Create a collaborative, diverse and exclusive community.
- ▶ Transform the student of today to be a leader of tomorrow and a better human being.
- ▶ Produce passionate teachers.
- ▶ Evolve innovative teaching techniques.
- ▶ Create a peaceful environment.
- ▶ Prepare the student to face the social challenges.
- ▶ Create a University of which the Nation is proud of.
- ▶ Be an effective partner in Nation Building.
- ▶ Create an Eco-friendly University.
- ▶ Create a University based on the principles of beauty, love and justice.

||Om Shanti! Om Shanti! Om Shanti||



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UNIVERSITY

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SDMU/ACAD/MED/PG/129A/2019

Date: 25-04-2019

## NOTIFICATION

### Ordinance governing Curricula of Medical Postgraduate Degree Courses in Para-clinical Subjects - 2019

- Ref:
1. Minutes of the 1<sup>st</sup> Meeting of Academic Council held on 20<sup>th</sup> March 2019  
(Letter No: SDMU/AC/M-01/093/2019; Dated:21-03-2019)
  2. Minutes of the 2<sup>nd</sup> Meeting of Board of Management held on 22<sup>nd</sup> March 2019  
(Letter No: SDMU/BOM/M-02/094/2019; Dated:23-03-2019)

In exercise of the powers conferred under Statutes 1.2 (Powers and functions - section viii), 1.4 (Powers and functions - section ix & x) of Shri Dharmasthala Manjunatheshwara University, the Board of Management is pleased to approve and notify the ordinance governing the Curricula of the following Medical Postgraduate Degree Courses in Para-clinical Subjects - 2019:

1. MD in Pathology
2. MD in Microbiology
3. MD in Pharmacology
4. MD in Forensic Medicine
5. MD in Community Medicine

The ordinance shall be effective for the students joining the course during 2019-20 and onwards.

REGISTRAR  
REGISTRAR,  
Shri Dharmasthala Manjunatheshwara  
University, Dharwad

To: The Principal, SDM College of Medical Sciences & Hospital.

**Copy for kind information to:**

1. Hon'ble Vice Chancellor - Shri Dharmasthala Manjunatheshwara University.
2. Pro Vice-Chancellor (Academics) - Shri Dharmasthala Manjunatheshwara University.
3. Controller of Examinations - Shri Dharmasthala Manjunatheshwara University.



## **M.D. PATHOLOGY**

### **OBJECTIVES**

The purpose of PG education is to create specialists who would provide high-quality healthcare and advance the cause of science through research and training. The postgraduate student should be trained in handling and processing histopathology, clinical pathology, microbiology, biochemistry and transfusion medicine samples with a thorough knowledge of general principles, methodology and interpretation.

### **DURATION OF THE COURSE**

The period of training for obtaining the degree shall be three completed years including the period of examination.

Provided that in the case of students having a MCI/NMC recognised two year postgraduate diploma course in the same subject, the period of training, including the period of examination, shall be two years.

### **SUBJECT SPECIFIC LEARNING OBJECTIVES**

The learning objectives in the cognitive, psychomotor and affective domains are:

#### **Cognitive Domain**

1. Diagnose routine and complex clinical problems on the basis of Histopathology (surgical pathology) and Cytopathology specimens, blood and bone marrow examination and various tests of Laboratory Medicine (Clinical Pathology, Clinical Biochemistry) as well as Blood Banking (Transfusion Medicine).
2. Interpret and correlate clinical and laboratory data, so that, clinical



manifestations of diseases can be explained.

3. Advise on the appropriate specimens and tests necessary to arrive at a diagnosis in a problematic case.
4. Correlate clinical and laboratory findings with pathology findings at autopsy, identify miscorrelations and the causes of death due to diseases (apart from purely metabolic causes).
5. Should be able to teach Pathology to Undergraduates, Postgraduates, Nurses and Paramedical Staff including Laboratory Personnel.
6. Plan, execute, analyse and present research work.
7. Make and record observations systematically and maintain accurate records of tests and their results for reasonable periods of time. Identify problems in the laboratory, offer solutions thereof and maintain a high order of quality control.
8. Capable of safe and effective disposal of laboratory waste.
9. Able to supervise and work with subordinates and colleagues in a laboratory.

### **Affective Domain**

1. Should be able to function as a part of a team, develop an attitude of cooperation with colleagues, to interact with the patients and the clinician or other colleagues to provide the best possible diagnosis or opinion.
2. Adopt ethical principles and maintain proper etiquette in dealings with patients, relatives and other health personnel and to respect the rights of the patient including the right to information and second opinion.

3. Develop communication skills to word reports and professional opinion as well as to interact with patients, relatives, peers, and paramedical staff for effective teaching.

### **Psychomotor Domain**

1. Able to perform routine tests in a Pathology Laboratory including grossing of specimens, processing, cutting of paraffin and frozen sections, making smears, and staining.
2. Able to collect specimens by routinely performing non-invasive out-patient procedures such as venipuncture, finger-prick, fine needle aspiration of superficial lumps and bone-marrow aspirates, and provide appropriate help to colleagues performing an invasive procedure such as a biopsy or an imaging-guided biopsy.
3. Perform an autopsy, dissect various organ complexes and display the gross findings.
4. Should be familiar with the function, handling and routine care of all types of equipment in the laboratory.

### **SUBJECT SPECIFIC COMPETENCIES**

#### **Cognitive domain**

A postgraduate student upon successfully qualifying in the MD (Pathology) examination should have acquired the following broad theoretical competencies and should be:

1. Capable of offering a high-quality diagnostic opinion in a given clinical

situation with an appropriate and relevant sample of tissue, blood, body fluid, etc. for the purpose of diagnosis and overall wellbeing of the ill.

2. Able to teach and share knowledge and competence with others. The student should be imparted training in teaching methods, in the subject, which may enable the student to take-up teaching assignments in Medical Colleges/Institutes.
3. Capable of pursuing clinical and laboratory-based research. The student should be introduced to basic research methodology, so that, the student can conduct fundamental and applied research.

### **Affective domain**

1. The student will show integrity, accountability, respect, compassion and dedicated patient-care. The student will demonstrate a commitment to excellence and continuous professional development.
2. The student should demonstrate a commitment to ethical principles relating to providing patient-care, the confidentiality of patient information and informed consent.
3. The student should show sensitivity and responsiveness to patients' culture, age, gender and disabilities.

### **Psychomotor domain**

At the end of the course, the student should have acquired skills, as described below:

#### **Surgical Pathology Skills :**

1. Given the clinical and operative data, the student should be able to identify, and systematically and accurately describe the chief gross anatomic

alterations in the surgically removed specimens and be able to correctly diagnose at least 80% of the lesions received on an average day from the surgical service of an average teaching hospital.

2. A student should be able to demonstrate the ability to perform a systematic gross examination of the tissues including the taking of appropriate tissue sections and in special cases as in intestinal mucosal biopsies, muscle biopsies and nerve biopsies, demonstrate the orientation of tissues in paraffin blocks.
  
3. 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. The student should also correctly interpret and correlate with the clinical data to diagnose at least 90% of the routine surgical material received on an average day.
  
4. Be conversant with automatic tissue processing machine and the principles of its operation.
  
5. Process a tissue, make a paraffin block and cut sections of good quality on a rotary microtome.
  
6. Stain paraffin sections with at least the following:
  - (i) Haematoxylin and eosin
  - (ii) Stains for collagen, elastic fibres and reticulin
  - (iii) Iron stain
  - (iv) PAS stain

- (v) Acid-fast stains
- (vi) Any other stains needed for diagnosis.

7. Demonstrate an understanding of the principles of:

- (i) Fixation of tissues
- (ii) Processing of tissues for section cutting
- (iii) Section cutting
- (iv) Differential (special) stains and their utility

8. Cut a frozen section using cryostat, stain and interpret the slide in correlation with the clinical data provided.

9. Demonstrate the understanding of the utility of various immunohistochemical stains especially in the diagnosis of tumour subtypes.

**Cytopathology Skills:**

1. Independently prepare and stain good quality smears for cytopathologic examination.
2. Be conversant with the techniques for the concentration of specimens: i.e. various filters, centrifuge and cytocentrifuge.
3. Independently be able to perform fine needle aspiration of all lumps in patients; make good quality smears, and be able to decide on the types of staining in a given case.
4. Given the relevant clinical data, he/she should be able to independently and correctly:
  - (i) Diagnose at least 75% of the cases received in a routine laboratory and categorize them into negative, inconclusive and positive.
  - (ii) Demonstrate ability in the technique of screening and dotting the slides for suspicious cells.
  - (iii) Indicate correctly the type of tumour, if present

- (iv) Identify with reasonable accuracy the presence of organisms, fungi and parasites

### **Haematology Skills :**

1. Correctly and independently perform the following special tests, in addition to doing the routine blood counts:
  - (i) Haemogram including reticulocyte and platelet counts.
  - (ii) Bone marrow staining including stain for iron.
  - (iii) Blood smear staining.
  - (iv) Cytochemical characterization of leukaemia with special stains like Peroxidase, Leukocyte Alkaline Phosphatase (LAP), PAS, Sudan Black, etc.
  - (v) Hemolytic anaemia profile including HPLC, Hb electrophoresis etc.
  - (vi) Coagulation profile including PT, APTT, FDP.
  - (vii) BM aspiration and BM biopsy.
  
2. Demonstrate familiarity with the principle and interpretation of results and the utility in diagnosing of the following:
  - (i) Platelet function tests including platelet aggregation and adhesion and PF3 release.
  - (ii) Thrombophilia profile: Lupus anticoagulant (LAC), Anticardiolipin Antibody (ACA), Activated Protein C Resistance (APCR), Protein C (Pr C), Protein S (Pr S) and Antithrombin III (AT III).
  - (iii) Immunophenotyping of leukaemia.
  - (iv) Cytogenetics.
  - (v) Molecular Diagnostics.

3. Describe accurately the morphologic findings in the peripheral and bone marrow smears, identifying and quantitating the morphologic abnormalities in disease states and arriving at a correct diagnosis in at least 90% of the cases referred to the Haematology clinic, given the relevant clinical data.

**Laboratory Medicine Skills :**

1. Plan a strategy of laboratory investigation of a given case, given the relevant clinical history and physical findings in a logical sequence, with a rational explanation of each step; be able to correctly interpret the laboratory data of such studies, and discuss their significance with a view to arriving at a diagnosis.
2. Demonstrate familiarity with and successfully perform:
  - i) Complete Urinalysis including examination of the sediment.
  - ii) Macroscopic and microscopic examination of faeces and identify the ova and cysts of common parasites.
  - iii) A complete examination: physical, chemical and cell content of Cerebrospinal Fluid (C.S.F), pleural, peritoneal and other body fluids.
  - iv) Semen analysis.
  - v) Examination of peripheral blood for commonly occurring parasites.
3. Independently and correctly perform at least the following quantitative estimations by manual techniques and/or automated techniques.
  - (i) Blood urea
  - (ii) Blood sugar
  - (iii) Serum proteins (total and fractional)
  - (iv) Serum bilirubin (total and fractional)

4. Demonstrate familiarity with the following quantitative estimations of blood/serum by Automated Techniques:
  - (i) Serum cholesterol, Uric acid, Serum Transaminases (ALT and AST/SGOT and SGPT), etc.
  - (ii) Prepare standard solutions and reagents relevant to the above tests, including preparation of the normal solution, molar solution and buffers.
  - (iii) Explain the principles of Instrumentation, use and application of the instruments commonly used in the labs eg. Photoelectric colorimeter, Spectrophotometer, pH meter, Centrifuge, Electrophoresis apparatus, ELISA Reader, Flow cytometer and PCR.

### **Transfusion Medicine Skills:**

1. The student should be able to independently perform the following:
  - (i) Selection and bleeding of donors.
  - (ii) Preparation of blood components i.e. Cryoprecipitates, Platelet concentrate, Fresh Frozen Plasma, Single Donor Plasma, Red Blood Cell concentrates.
  - (iii) ABO and Rh grouping.
  - (iv) Demonstrate familiarity with Antenatal and Neonatal work up.
2. Direct antiglobulin test.
3. Antibody screening and titre.
4. Selection of blood for exchange transfusion.

Demonstrate familiarity with the principle and procedures involved in:

  - (i) Resolving ABO grouping problems.
  - (ii) Identification of RBC antibody.
  - (iii) Investigation of transfusion reaction.



- (iv) Testing of blood for the presence of:
  - a. HBV (Hepatitis B Virus Markers),  
HCV (Hepatitis C Virus Markers)
  - b. HIV (Human Immunodeficiency Virus)
  - c. VDRL
  - d. Malaria

## **COURSE CONTENTS**

The study of Pathologic Anatomy includes all aspects of Pathology as encompassed in the branches of General and Systemic Pathology. A post graduate is supposed to acquire not only the professional competence of a well- trained specialist but also academic maturity, a capacity to reason and critically analyse scientific data as well as to keep himself abreast of the latest developments in the field of Pathology and related sciences. Only the broad outlines are provided.

### **1. BASIC SCIENCES**

- (i) Anatomy: Histology - of all structures in the human body/organ
- (ii) Physiology and Biochemistry: basic aspects of various metabolisms and functioning of endocrines
- (iii) Genetics: Fundamental/Applied aspects
- (iv) Biostatistics
- (v) Bio-medical ethics: Ethical issues related to medical practice and research involving human subjects and animals.

### **2. Pathology:**

- (i) Historical aspects

- (ii) General pathology including immunopathology - Normal cell and tissue structure and function. The changes in cellular structure and function in disease. Causes of disease and its pathogenesis. The Reaction of cells, tissues, organ systems and the body as a whole to various sublethal and lethal injuries.
- (iii) Systemic pathology - The study of normal structure and function of various organ systems and the etiopathogenesis, gross and microscopic alterations of the structure of these organ systems in disease and functional correlation with clinical features.
- (iv) Haematopathology - The study of Haematology includes all aspects of the diseases of the blood and bone marrow.
- (v) Blood banking including transfusion medicine.
- (vi) Cytopathology.
- (vii) Genetic disorders: molecular pathology.
- (viii) Recent advances in all relevant fields.
- (ix) Organization and functioning of the laboratory including quality control.

### **METHOD OF TRAINING:**

The three-year training programme for the MD degree may be arranged in the form of postings to different assignments/laboratories for specified periods as outlined below. The period of such assignments/postings is recommended for 35 months. Posting schedules may be modified depending on needs, feasibility and exigencies. For facilities not available in the parent institution as well as for additional knowledge and skill, extramural postings may be undertaken.

### **Section/Subject Duration in months**

(i) Surgical Pathology and Autopsy and Pathology Techniques	12
(ii) Haematology and Laboratory Medicine	10
(iii) Cytopathology	08
(iv) Transfusion Medicine/Blood Bank	02
(v) Museum techniques and record management	01
(vi) Basic sciences including Immunopathology, Electron microscopy, Molecular Biology. (Including External posting - NIMHANS)	02
<b>Total</b>	<b>35</b>

The following are rough guidelines for various teaching/learning activities that may be employed.

1. Collection of specimens including Fine Needle Aspiration of lumps.
2. Grossing of specimens.
3. Performing autopsies.
4. Discussion during routine activities such as during signing out of cases.
5. Presentation and work-up of cases including the identification of special stains and ancillary procedures needed.
6. Clinico-pathological conferences.
7. Intradepartmental and interdepartmental conferences related to case discussions.
8. Conferences, Seminars, Continuing Medical Education (CME) Programmes.
9. Journal Club.
10. Research Presentation and review of research work.

11. The postgraduate student would be required to present one poster presentation and one oral paper at a national/state conference and to present one research paper/case report which should be published/accepted/sent for publication during the period of his postgraduate studies so as to make him/her eligible to appear at the postgraduate degree examination.
12. Regular laboratory work.
13. Use and maintenance of equipment.
14. Maintenance of records. Log books should be maintained to record the work done which shall be checked and assessed periodically by the faculty members imparting the training.
15. Postgraduate students shall be required to participate in the teaching and training programme for undergraduate students and interns.

#### **Small Group Teaching-Learning Sessions:**

- a. Biopsy/Slide review once a week
- b. Journal review - once a month
- c. Subject seminar presentation once in three months (by each student on a given topic)
- d. Grossing sessions - Regularly
- e. Group discussion of clinical cases/laboratory techniques
- f. Undergraduate Teaching (under guidance)

#### **MONITORING OF PROGRESS OF STUDIES**

Each student is required to maintain a detailed work diary (Log book). Work diary is to be checked monthly by the head of the department.

## DISSERTATION

- 1) Every candidate is required to carry out work on a selected research project under the guidance of a recognised postgraduate teacher. The results of such work shall be submitted in the form of a dissertation
- 2) The dissertation is aimed to train the candidate in research methodology. It includes identification of a problem, formulation of a hypothesis, search and review of relevant literature, getting acquainted with recent advances, designing of research study, collection of data, and critical analysis of results and drawing conclusions.
- 3) The dissertation is to be submitted at least six months before the final examination as notified by the University to the controller of examination.
- 4) Prior acceptance of the dissertation shall be a precondition for a candidate to appear for the final examination.

## SCHEME OF EXAMINATION

### A. THEORY :

There shall be four papers, each of three hours duration. Each paper shall consist of ten essay questions each question carrying 10 marks each. Total marks for each paper will be 100. Questions on recent advances may be asked in any or all the papers.

Paper I	General Pathology	100 Marks
Paper II	Hematopathology, Clinical Pathology, Cytopathology Blood banking and Transfusion Medicine	100 Marks
Paper III	Systemic Pathology I (Cardiovascular system, Respiratory system, Gastrointestinal system including liver and biliary tract, Pancreas, Renal system, Male and Female Reproductive System and Breast)	100 Marks
Paper IV	Systemic Pathology II (Central and Peripheral	100 Marks

	nervous system, Endocrine system, Musculo-skeletal system, Reticulo-endothelial System, Dermatopathology)	
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**Note:** *In spite of the topics assigned to the different papers, a strict division of the subject is not possible and some overlapping of topics is inevitable. Students should be prepared to answer overlapping topics.*

**B. PRACTICAL: Total marks = 200 (Duration – 2 days)**

**DAY 1:**

- |  |          |
|--|----------|
| a. Autopsy / Reconstructed autopsy (organ systems)                   | 20 Marks |
| b. Gross and morbid anatomy. 10 Specimens x 3 marks                  | 30 Marks |
| c. Haematology and Cytology slides. 8+7 slides x 2 marks             | 30 Marks |
| d. Histopathology techniques:  | 40 Marks |
| 1. H and E staining: Discussion on Histopathological techniques      | 10 Marks |
| 2. One Special staining - Discussion on technique and interpretation | 5 Marks. |
| 3. Cytology staining - Discussion on technique and interpretation.   | 10 Marks |
| 4. One Slide of IHC with history. Discussion and interpretation.     | 10 Marks |
| 5. Intraoperative consultation : Frozen section/ imprint slide       | 5 Marks  |
| e. Topic allotment for Pedagogy exercise.                            |          |

**DAY: 2.**

- |  |          |
|--|----------|
| a. Histopathology slides. 15 slides x 2 marks                                | 30 Marks |
| b. Clinical pathology and Haematology techniques:<br>(Clinical case/history) | 40 Marks |
| c. Blood bank Techniques   | 10 Marks |

**C. VIVA -VOCE: Total- 100 Marks**

- |                           |          |
|---------------------------|----------|
| 1) Viva-Voce Examination: | 80 Marks |
|---------------------------|----------|

It includes discussion on dissertation and research methodology

2) Pedagogy Exercise:

20 Marks

A student is asked to make a presentation on the given topic for 10 minutes.

Maximum marks for	Theory	Practical	Viva	Total
M.D Pathology) examination	400	200	100	700

### **RECOMMENDED TEXTBOOKS AND JOURNALS:**

#### **BOOKS:** Latest Editions

1. Cotran, Kumar, Robbins, Pathologic Basic Of Disease, Published by W.B.Saunders and Company
2. Edited by Jaun Rosai, Ackerman's Surgical Pathology, Published by C.V. Mosby company
3. Enzinger and Weiss, Soft Tissue Tumours, Published by B.I.Publications (India) C.V.Mosby company
4. Wf Lever - GS Lever, Histopathology Of The Skin, Published: J.B. Lippin Cott Company
5. David J.B.Ashley EVAN'S Edited, Histological Appearances Of Tumours, Published by Churchill Livingstone
6. Novak and Woodruff Edited, Novak's Gynecologic And Obstetric Pathology, Published by – Kiaku Shoin/ Saunders
7. Leopold G Koss, Diagnostic Cytology And Its Histopathologic Basis, Published by J.G.Lippincott Company
8. Marluce Bibbo, Comprehensive Cytopathology Published by W.B. Saunders and Company
9. Winnifred Grey, Edited, Diagnostic Cytopathology, Published by Churchill Livingstone
10. Orell, Sterrett, Walters and Whittaker, Fine Needle Aspiration Cytology (Manual and Atlas), Published by Churchill Livingstone

11. Daniel M Knowles, Edited, Neoplastic Haematopathology, Published by Williams and Wilkins
12. Maxwell M Wintrobe, Clinical Haematology, Published by K. M. Varghese and Company
13. Todd, Sanford, Davidson, Clinical Diagnostics And Management By Laboratory Methods, Published by W.B.Saunders and Company
14. Christopher D.M.Fletcher, Edited, Diagnostic Histopathology Of Tumours Vol. 1 and 2, Published by Churchill Livingstone
15. Shameem Shariff, Laboratory Techniques in Surgical Pathology, Prism Publications
16. Transfusion medicine – Technical manual, Directorate General of Health services, ministry of Health and family welfare.
17. Modern blood banking and transfusion practices, Denise M Harmening.
18. Dacie and Lewis Practical Haematology published by Elsevier
19. Postgraduate hematology
20. Potter's Pathology of Fetus, Infant and Child published by Mosby Elsevier
21. Ludwig's Handbook of Autopsy Practice published by Humana press
22. The Bethesda system for reporting cervical cytology. Ritu Nayar, David C Wilbur Springer (Switzerland)

**Monograms:**

23. Blaustein's Pathology of the Female Genital Tract, Published by Springer
24. Breast Pathology by David J Dabbs, published by Elsevier, Saunders
25. Ioachim's Lymph node Pathology published by Lippincott Williams and Wilkins
26. Rosen's breast Pathology
27. WHO Fascicles

**JOURNALS:**

1. The Indian Journal of Pathology and Microbiology, Published by IAPM
2. Journal of Clinical Pathology, Publishing Group BMJ
3. Histopathology, Journal of the British Division of the international academy of pathology Published by Blackwell Science



4. The American journal of Surgical Pathology, Published by Lippincott – Raven  
British Journal of Haematology Published by Blackwell Science
5. CANCER, International Journal of the American cancer society, Published by  
John Wiley and Sons, Inc.
6. Haematology/Oncology Clinics of North America, Published by  
W.B.Saunders and company
7. ACTA Cytologica, The Journal of clinical cytology and cytopathology
8. Archives of Pathology and Laboratory Medicine, Published by the American  
Medical Association

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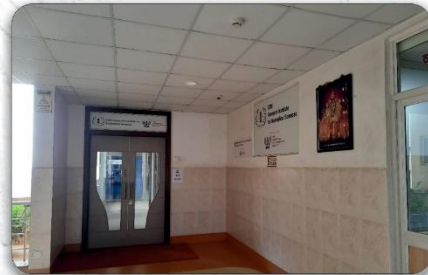
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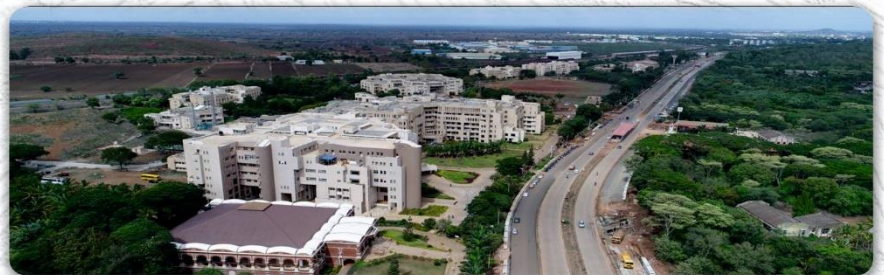
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Panoramic View of Campus