

SUMANDEEP VIDYAPEETH

(Declared as Deemed to be University under Section 3 of the UGC Act 1956)

Accredited by /NAAC with a CGPA of 3.61 out of four-point scale at 'A++'

Grade Category - I deemed to be university under UGC Act - 2018

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CURRICULUM

Doctor of Medicine
(M.D.)

PATHOLOGY

Attested CTC

Sharan
15/2/2021

Vice-Chancellor

Sumandeep Vidyapeeth

An Institution Deemed to be University

Vill. Piparia, Taluka: Waghodia.

Dist. Vadodara-391 760. (Gujarat)

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rogramme outcome : MD

The purpose of MD education is to create specialists who would provide high quality health care and advance the cause of science through research & training. The goal of postgraduate medical education shall be to produce competent specialists and/or Medical teachers.

Programme specific outcome : MD

POS 1. Scholars shall recognize the health needs of the community, and carry out professional obligations ethically and in keeping with the objectives of the national health policy.

POS 2. Scholars shall have acquired the basic skills in teaching of the medical and paramedical professionals.

POS 3. Practice the specialty concerned ethically and in step with the principles of primary health care.

POS 4. Demonstrate sufficient knowledge of the basic sciences relevant to the concerned specialty.

POS 5. Develop skills in using educational methods and techniques as applicable to the teaching of medical/nursing students, general physicians and paramedical health workers.

COURSE OUTCOME (CO): A post graduate student upon successfully qualifying in the MD (Pathology) examination shall 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 his 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. He/she should be introduced to basic research methodology so that he/she can conduct fundamental and applied research.
4. The student shall follow the objectives like integrity, accountability, respect, compassion and dedicated patient care. The student will demonstrate a commitment to excellence and continuous professional development.
5. The student should demonstrate a commitment to ethical principles relating to providing patient care, confidentiality of patient information and informed consent.
6. The student should show sensitivity and responsiveness to patients' culture, age, gender and disabilities.
7. The student should have acquired skills such as Surgical pathology, cytopathology, hematology, laboratory medicine, transfusion medicine and imunohistochemistry.



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 specialty 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.
- (vi) Conduct research works independently incorporating most current and best evidence available and practice **Evidence based education system (EBES)**

OBJECTIVES :

Duration of course – 3 years.

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

1. On job training

- Histopathology including techniques and reporting
- Cytology including FNAC, fluid cytology, exfoliative cytology- techniques and reporting
- Hematology 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

1. Lectures:

They shall be kept minimum and integrated depending upon the topic. All PG's shall attend the classes taken by faculty for undergraduate students.

2. Case based & problem based learning

All post graduates after enrolment will be exposed to organized evidence searching skills lectures along with teaching of clinical epidemiology, biostatistics and research methodology.

One session on last day of the week to be kept for case based learning or problem based learning wherein interesting cases may be chosen from the surgical pathology section, cytology section, clinical laboratory etc. The cases will be presented by the post graduate student and discussed by them as well as the senior staff of the department and with the doctors involved in the cases supported by higher level of evidences.

3. Journal Club:

One session of journal article review to be kept once a month, preferably 3rd Thursday of the month. All the post graduate Journal Clubs will be carried out on a prescribed Evidence Based format with emphasis on critical appraisal. A designated teacher/facilitator will assess every post graduate student for each JC presentation.

4. Subject Seminar:

One session of subject seminar shall be kept preferably on 4th Thursday of every month. All PG seminars will have evidence embedded in the presentation and all references relating to the subject matter will be incorporated. At the end of the seminar all the references will be listed and the seminar will be assessed by the facilitator.



Clinico-Pathological Correlation meetings:

All PG students are expected to actively participate in Clinico-Pathological Correlation meetings which should be supported by higher level of evidences

5. Integrated Teachings:

Such teachings especially with departments of pathology, radiodiagnosis and other concerned departments shall be arranged at least once a month. These meetings should be attended by post-graduate students and relevant entries must be made in the log book. In pathology, interesting cases shall be chosen and presented by the post-graduate students and discussed by them as well as the senior staff of Pathology department. The staff of Pathology department would then show the slides and present final diagnosis. In these sessions, the advanced immunohistochemical techniques, the burgeoning markers & other recent developments to be discussed. In radio diagnosis, interesting cases and the imaging modalities shall be discussed with emphasis given for differential diagnosis. Every post graduate student will be exposed to at least one encounter of role modeling in which a consultant after raising a relevant query will search for its evidence and demonstrate evidence searching methodologies, its importance and utility to the student.

6. Teaching Skills:

Every post-graduate student must teach under graduate students by taking demonstrations, tutorials, lectures etc. Assessment shall be made using a checklist by medical faculty as well as by the students. Record of their participation is to be kept in log book. Training of postgraduate students in educational science and technology shall be recommended.

7. CME, Conferences, Publications:

During the three year course duration a post graduate student is expected to present one paper and one poster in National or international conferences in their specialty. The student is also required to publish one original research paper in National or international journal of their specialty.

Research Activities:

All post-graduate students shall be encouraged to carry out research activities in the department other than dissertation work in conjunction with the faculty of the department.



OTHER CRITERIA TO BE FULFILLED FOR THE DEGREE COURSE

1. Internal evaluation

Two internals and one Prelim examination in Theory as well as practical's are conducted at the end of 1st year, 2nd year and Prelim examination 3 months prior to University examination.

Purpose is to ensure clinical expertise of student with practical & communication skills and balance broader concept of diagnostic and therapeutic challenges.

- To introduce Basic life support (BLS) and Advanced Cardiac Life Support (ACLS) training for all the First year Postgraduate Resident Doctors from academic year 2017-18.

- *To introduce New chapter / topic 'Intellectual Property Rights (IPR) for all the First year Postgraduate Resident Doctors from academic year 2020-2021 of duration of 4hrs (Board of Studies letter no.: SBKS/DEAN/742/2021, dated 05/06/2021 and Vide Notification of Board of Management Resolution Ref no.:SVDU/R/3051-1/2020-21, dated - 29" July 2021)*

List of topics :

- 1. Introduction - Concept of Intellectual Property, Historical view of Intellectual Property system in India and International Scenario, Evolution of Intellectual Property Laws in India, Legal basis of Intellectual Property Protection, Need for Protecting Intellectual Property, Theories on concept of property - Major IP Laws in India.*
 - 2. Types of IPR: Patents, Copyright, Trademark Industrial Designs, Trade Secrets.*
 - 3. Patents: Concept of Patent, Criteria of Patentability, Inventions NOT patentable, Process of Obtaining a Patent, Duration of Patents, Rights of Patentee, Limitation of rights, Infringement and Enforcement.*
 - 4. Copyrights: Meaning of Copyright, Copyright Vs. Moral rights, Copyright eligibility, Term of Copyright, Registration of Copyright, Infringement and Remedies*
 - 5. Trademark: Meaning of Trademark, Criteria for trademark, Procedure for Trademark Registration, Term of protection, Infringement and Remedies.*
 - 6. Industrial Designs: Meaning of Industrial Designs, Rights in Industrial Designs: Nature, Acquisition and duration of rights.*
 - 7. Trade Secrets: Meaning of Trade Secrets, Need to protect Trade secrets, Criteria of Protection, Procedure for registration, Infringement.*
 - 8. Commercialization of IPR: Traditional IP and Evolving IP, Assignment, Licensing, Cross License, Patent Pool, Negotiations, Defensive Publications, Technical Disclosures, Patent Pooling, Patent Trolling, Brand Management, Brand and Pricing Strategies.*
- *With reference to the Notification vide no. MC!-18(1)12020-Med.1121415, dated 16.09.2020, related to 'Postgraduate Medical Education (Amendment) Regulations 2020'; all the postgraduate students pursuing MD / MS in broad specialties in Sumandeep Vidyapeeth Deemed to be University, as a part of course curriculum, shall undergo a compulsory Residential rotational posting in the 3rd or 4th or 5th semester of the Postgraduate programme, for a duration of three months, in the District Hospitals / District Health System, is confirmed and approved for execution.*
 - *(Board of Studies letter no.:SBKS/DEAN/1576/2020,dated 0/10/2021 and Vide Notification of Board of Management Resolution : Ref no. SVDU/R/1271-1/2020-21, dated - 30th December 2020)*

2. Maintenance of Log Book

Every candidate shall maintain a Log book/work diary and record his/her participation in the training programs 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. All the procedures performed by the post graduate students should be entered in the Log book. All the daily activities including the routine procedures performed on day to day basis should be entered in the Log book and it should be verified and signed by the faculty member. The Log book shall be scrutinized and certified by the Head of the Department and Head of the Institution and presented in the University practical/clinical examination.

3. Dissertation

Objective:

The student should be able to demonstrate capability in research by planning and conducting systematic scientific enquiry, data analysis and deriving conclusion. Also he should be able to effectively communicate scientific information for health planning.

Guide for dissertation, submission and assessment: As per directions of institute.

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

TEACHING /LEARNING CONTENT

A. THEORY

I BASIC SCIENCES

Anatomy/histology of all structures in human body/organs

1. Physiology and biochemistry-Basic aspects of various metabolism and functioning of endocrines
2. Genetics-Fundamental / applied aspects
3. Biostatistics
4. Biomedical ethics-ethical issues related to Medical practice and research

II PATHOLOGY

Historical aspects

1. General pathology
2. Systemic pathology
3. Haematology
4. Blood banking and Transfusion Medicine
5. Cytopathology
6. Clinical Pathology
7. Medical autopsy: Techniques and interpretation
8. Recent advances in all fields ,related to Pathology
9. 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

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POSTING SCHEDULE:

- | | |
|---|-----------|
| 1) Histopathology and Autopsy :- | 15 months |
| 2) Clinical pathology Haematology :- | 10 months |
| 3) Cytopathology, | 6 months |
| 4) Blood Bank | 1 month |
| 5) Basic Sciences including Immunopathology, EM,
Molecular Biology, Research techniques, Cytogenetics etc. | 1 month |
| 6) Elective reorientation Serology :- | 2 months |

TOTAL 35 months

Scheme of Examination

Paper I: Duration:3 hours Max marks: 100	General Pathology, Pathophysiology, Immunopathology and Cytopathology
Paper II: Duration:3 hours Max marks: 100	Systemic Pathology
Paper III: Duration:3 hours Max marks: 100	Haematology, Transfusion, Medicine (Blood Banking), Laboratory Medicine
Paper IV: Duration:3 hours Max marks: 100	Recent advances and applied aspects

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The practical/clinical examination should consist of the following and should be spread over two days

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Clinical Pathology:

Discussion of a clinical case history.

Plan relevant investigations of the above case and interpret the biochemistry findings.

Two investigations should be performed including at least one biochemistry exercise/clinical pathology exercise like CSF, pleural tap etc. analysis and complete urinalysis.

II. Haematology:

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Discuss haematology cases given the relevant history. Plan relevant investigations

Perform complete hemogram and at least two tests preferably including one coagulation exercise

Identify electrophoresis strips, osmotic fragility charts etc. Interpretation of data from autoanalysers, HPLC and flow cytometry.

Examine, report and discuss around ten cases given the history and relevant blood smears and/or bone marrow aspirate smears and bone marrow biopsy interpretation.

III. Transfusion Medicine:

Perform blood grouping

Perform the necessary exercise like cross matching.

Coomb's test, gel cards interpretation.

IV. Histopathology:

Examine, report and discuss 12-15 cases histopathology and 5-8 cytopathology cases, given the relevant history and slides.

Perform a Haematoxylin and Eosin stain and any special stain on a paraffin section. Should be conversant with histopathology techniques including cryostat.



V. Autopsy:

Given a case history and relevant organs (with or without slides), give a list of anatomical diagnosis in a autopsy case.

VI. Gross Pathology

Describe findings of gross specimens, give diagnosis and identify the sections to be processed. The post graduate student should perform grossing in front of the examiners for evaluation.

VII. Basic Sciences:

10-15 spots based on basic sciences be included

Identify electron micrographs

Identify gels, results of PCR, immunological tests including interpretation of Immunofluorescence pictures.

Identify histochemical and immuno-histochemistry stains

Teaching exercise 10 min

Implementation of Revised Competency Based Post Graduate Training Programme for MD in pathology as per the guidelines prepared by the National Medical Commission through Subject Expert Groups{ Date of Bos 21.07.2022 Ref :SBKSMIRC/Dean/Outward No.1301/2021-22, Date of Academic council :29.07.2022 Ref :SVDU/NOTFN/O370/2021-22 dated 30.07.2022}