



**LIAQUAT UNIVERSITY OF MEDICAL & HEALTH
SCIENCES**

Institute of Dentistry

NAME OF PROGRAM

PhD ORAL PATHOLOGY

DURATION OF COURSE

THREE YEARS

SECTION-I

1. INTRODUCTION TO LUMHS

1.1 LUMHS at Glance:

The Liaquat University of Medical and Health Sciences (LUMHS) is a public medical university located in Jamshoro, Sindh, Pakistan. It is started as a medical school, and known for its mission to bring innovative advances to medical education and to train undergraduate and postgraduate students in line with the highest professional standards. It is in conjunction with Liaquat University Hospital and NIMRA Cancer Hospital. The university has been ranked among top medical schools by Higher Education Commission (Pakistan).

LUMHS is the second oldest medical school in Pakistan and the oldest in Sindh. It was later upgraded to the status of medical college known as Sindh Medical College in 1942. After Sind province got separated from Bombay Presidency, the college started teaching MBBS under

University of Bombay. The requirements set by the university to maintain the affiliation led to the college being shifted to Karachi on December 10, 1945, and as a result, it was renamed as Dow Medical College. The Sindh government subsequently restarted the old medical college in the premises of the same civil hospital at Hyderabad in 1951, which acquired its name as Liaquat Medical College (LMC), after the name of first prime minister of Pakistan, Liaquat Ali Khan. Liaquat Medical College Hospital (later known as Liaquat University Hospital) was simultaneously started in the premises of the university.

The LMC was affiliated with University of Sindh. The college with its journey and natural growth for more than 62 years made tremendous contributions in both medical education and health care in the province and the country. The college was shifted to its new campus which spreads over 570 acres at Jamshoro in 1963 as the provincial government found the campus in Hyderabad to be inadequate and not sufficient to meet the demands of a top tier medical college. Faculty of Dentistry was also introduced in the same year after relocation. It became the second oldest and the largest institute of dentistry in the country. Postgraduate courses were also started simultaneously. After an ordinance was passed by Government of Sindh in 2001, it was upgraded to the status of the first public-sector medical university of the country. IT project was approved in 2002. The university was ranked as the second best medical university in Pakistan throughout its initial years after being upgraded by the HEC.

Research journals:

Journal of Liaquat University of Medical and Health Sciences (JLUMHS) Jamshoro, Pakistan, publishes original manuscripts, case reports and reviews on topics pertaining to medical and health sciences. It is included in Index Medicus for WHO Eastern Mediterranean Region (IMEMR) as well as Embase.

Liaquat Medical Research Journal (LMRJ) [ISSN (Print): 2664-5734] is a print and online (double blind, peer-reviewed) journal devoted to publishing innovative research and scholastic / academic content from all fields of medical and health sciences, concentrating on recent advances in clinical, diagnostic and preventive domains.

Medical Research Center

The Medical Research Center (MRC) promotes the health of people in Pakistan and around the world by sponsoring good science and training scientists. MRC collaborates closely with Pakistani health facilities to host clinical research/trials through its established hospital-based clinical research sites. The Medical Research Centre (MRC) conducts research in a variety of

fields and provides technical and advisory research services to local and international clients/investigators/sponsors who may want technical assistance or collaboration in the implementation of health research. National and international collaborations are encouraged in collaboration with other research institutes, academics, and business groups, and they use their networks and influence to form new partnerships that produce exceptional research and innovation in the health sector.

Office of Research, Innovation and Commercialization (ORIC):

Offices of Research, Innovation and Commercialization (ORIC) focuses to strengthen research culture at Liaquat University of Medical & Health Sciences, Jamshoro and to link research activities directly to other educational institutions at national and international level and deliver its benefit to the community. The ORIC also strives to facilitate faculty in developing and conducting high quality research projects of International standard.

1.2 LUMHS Mission Statement:

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- Fostering ideal learning environment to ensure modern scientific evidence based practices by imparting critical knowledge, analytical and psychomotor skills, and professional dedication among healthcare students, under the umbrella of virtuous professional, moral and ethical standards.
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1.2 Vision:

- Liaquat University of Medical & Health Sciences seeks to be a top-tier healthcare institution, producing ingenious academic leaders, medical researchers, and healthcare advocates to serve global community.

Mission Statement For Department of Oral Pathology.

“To produce highly competent Oral Pathology Ph.D. graduates who provide safe, holistic patient care, integrate basic sciences with clinical practice, collaborate across teams, generate research contributions, practice evidence-based decision-making, and role-model professionalism — ultimately improving oral and systemic health.”

2.1 Scope of Ph.D Oral Pathology program

PhD scholars contribute to improving oral health globally by advancing diagnostic accuracy, treatment outcomes, and preventive strategies—thus fulfilling both academic and public health goals.

2.2 Goals of PhD Program

1. To expedite the academic growth and development in undergraduate medical education by providing properly qualified and trained basic sciences teachers.
2. To institutionalize research by producing more PhDs, particularly in the emerging fields of basic medical sciences.
3. Better educated and trained health care professionals engaged as academicians, researchers and field practitioners for community services.
4. To improve health standards of the community in this underdeveloped region of the world.

ORAL PATHOLOGY

Objectives:

- To train PhD scholars so as to ensure higher competence in both general and special pathology dealing with the nature of oral diseases, their causes, processes and effects.
- An oral pathologist is expected to perform routine histopathological evaluation of specimens relating to oral and perioral tissues, to carry out routine diagnostic procedures including hematological, cytological, microbiological, Immunological and ultra structural investigations.
- He/she is expected to have an understanding of current research methodology, collection and interpretation of data, ability to carry out research projects on clinical and or epidemiological aspects, a working knowledge on current databases, automated data retrieval systems, referencing and skill in writing scientific papers.
- He/she is expected to present scientific data pertaining to the field, in conferences both as poster and verbal presentations and to take part in group discussions.

Broad outline of theoretical, clinical and practical courses.

1. Study of principles of routine and special techniques used for histopathology including principles of histochemistry, Immunochemistry, applied and theoretical biochemical basis of histochemistry as related to oral pathology.
2. Advanced histological and histopathological study of dental and oral tissues including embryonic considerations, clinical considerations, biology, histology, Pathology, prognosis and management of oral oncology, Concepts of oral premalignancy
3. Study of special and applied pathology of oral tissues as well as relation of local pathologic and clinical findings to systemic conditions.
4. Oral microbiology and their relationship to various branches of dentistry.
5. Oral microbiology affecting hard and soft tissues. Study of clinical changes and their significance to dental and oral diseases as related to oral pathology

6. Forensic odontology
7. Inter institutional postings such as cancer hospital, dermatology clinics, regional HIV detection centers, sophisticated instrumentation centers for electron microscopy and other techniques.
8. Maintenance of records of all postgraduates activities.
9. Oral radiology
10. Library assignment.
11. University Dissertation.

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Program Outcomes by Domain & Competencies

Cognitive Domain

(Knowledge & intellectual skills)

Graduates will be able to:

1. **Analyze and apply basic sciences** to understand the pathogenesis and clinical management of oral and maxillofacial diseases.
 2. **Evaluate research literature critically** and integrate evidence-based findings into practice and policy.
 3. **Design collaborative research protocols** that address gaps in oral pathology knowledge and contribute new scientific evidence.
 4. **Formulate diagnostic strategies** that incorporate safe and holistic care principles tailored to diverse patient populations.
 5. **Explain complex diagnostic findings** effectively to healthcare teams and non-specialists using clear communication.
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Psychomotor Domain

(Skills and technical competencies)

Graduates will be able to:

1. **Perform oral tissue biopsy, specimen processing, and microscopy** with precision and safety, ensuring optimal diagnostic accuracy.
 2. **Apply evidence-based laboratory techniques** and advanced diagnostic tools competently in clinical-research settings.
 3. **Demonstrate safe handling of specimens** and laboratory instruments according to best practice protocols and infection control standards.
 4. **Implement collaborative diagnostic reviews** and interdisciplinary case conferences with other healthcare team members.
 5. **Produce scholarly presentations and posters** to communicate research findings professionally and effectively.
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Affective Domain

(Professionalism, attitudes, and values)

Graduates will be able to:

1. **Exhibit empathy and cultural sensitivity** when discussing diagnoses and providing holistic care to patients.
2. **Demonstrate ethical integrity and responsibility** toward patient care, research, and team interactions.
3. **Value teamwork and interdisciplinary collaboration**, respecting diverse expertise across dental and medical teams.
4. **Commit to lifelong learning and continuous self-improvement** by engaging in ongoing education and self-assessment.
5. **Act as a role model** to students and peers, upholding high professional standards and encouraging evidence-based practice.

Summary (Linking Mission & Competencies)

This Oral Pathology Ph.D. program prepares graduates who:

- Integrate basic and clinical sciences into **safe, holistic care**.
- Communicate effectively with patients and team members.
- Collaborate as part of multidisciplinary teams.
- Contribute to the discipline as ethical, evidence-based **researchers and educators**.
- Embody **professionalism** and serve as role models.

SECTION-III

3 ADMISSION PROCESS

3.1 ADVERTISEMENT

Advertisement shall be given by Ph.D Admission Committee of LUMHS after ascertaining the availability of facilities and number of seats in different disciplines.

The Ph.D program shall be advertised in the beginning of each academic session. The advertisement shall normally appear in the newspapers and LUMHS website.

3.2 ELIGIBILITY

- a. Those who already have completed their M.Phil or equivalent (candidates need to provide equivalence from PMDC or HEC) can apply for Ph.D provided they have ≥ 3.0 CGPA in semester system and 1st division in annual examination.
- b. A subject test shall be conducted by the LUMHS in the area of specialization chosen at the Ph.D level must be cleared prior to admission for the Ph.D Programme with a minimum 70% passing score shall be required at the time of admission to Ph.D programme.

c. Interview.

Admission Committee shall be responsible to organise/arrange the interviews. All candidates shall be informed regarding the date and the venue of the interview.

No unauthorised person or relative shall be allowed to visit the interview venue during interview.

The recommendations made in the interview shall be shared and approved from the Ph.D Committee and with the final approval of the Vice-Chancellor the candidate is offered to have provisional registration in Ph.D programme.

3.3 AGE LIMIT:

The private candidate should be under 40 years and In-service candidate should not be more than 50 years of age.

3.4 ENROLLMENT:

All candidates, admitted in Ph.D programme should enroll themselves with the Inspectorate of Colleges, LUMHS Jamshoro within one month of their admission.

3.5 IN-SERVICE CANDIDATES

In-service candidates shall be required to apply through proper channel with no objection certificate from their employer. In case of failure to comply with the rules their application shall not be entertained.

3.6 ADMISSION DECISION

The decision concerning admission is made by Admission Committee and Ph.D committee and is based on an overall evaluation of the applicant.

3.7 TEACHERS TO STUDENTS' RATIO:

Number of Students per supervisor should 4-5 PhD students in basic sciences of any post graduate program at any given time.

SECTION-IV

4. PROGRAM SPECIFICATION– PhD Oral Pathology

4.1 DURATION OF PROGRAM:

The PhD program will be minimum three (03) years duration and maximum Eight (08) years duration.

4.2 CREDIT HOURS:

Ph.D for those who have already acquired M. Phil or equivalent degree in the relevant discipline. This mode has three years of education where candidate is supposed to complete minimum 18 credit hours course work. (18x16= 288 clock hours).

- a) The PhD Candidate (MPhil/MS degree holders) must undertake eighteen (18) Credit hour of coursework.
- b) The coursework components will consist of designated courses that are compulsory within 12 months of enrolment in the program.

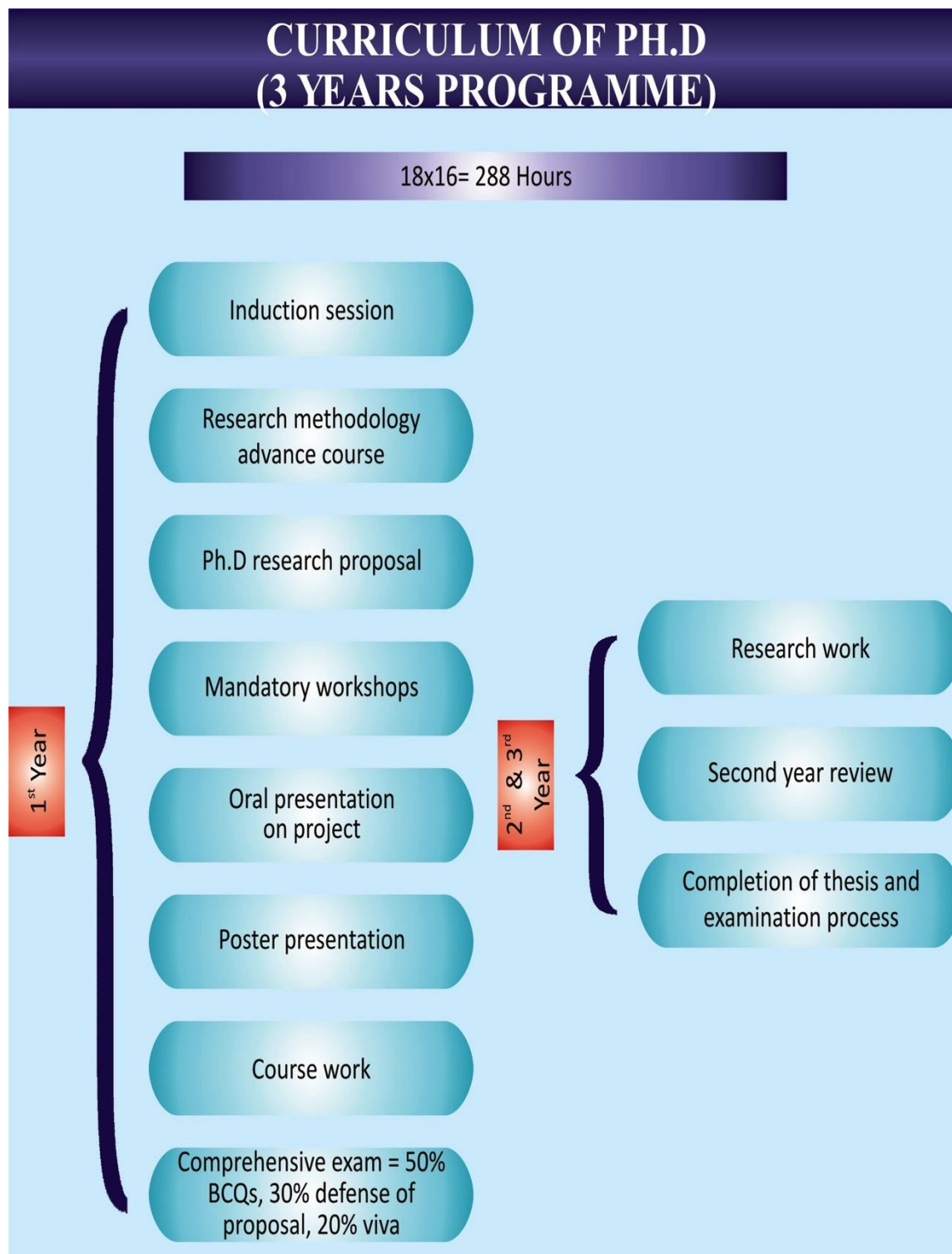
4.3 CURRICULUM DESIGN

The Graduate of PhD in Oral Pathology will not only be a Subject Specialist but will also be a Scientific researcher, Educator, Effective communicator and Collaborator. Elaborate Curriculum is needed to be designed to equip the scholars of scholars for these important roles. Therefore, besides academic Oral Pathology, training and developing of the scholars in following should be integrated into the curriculum design:

- Research skills and methodology to conduct quality research

- Educators capable of teaching medical anatomical discipline
- IT & AI skills
- Ethics & Responsibility
- Leadership
- Professionalism

4.4 FLOW CHART OF CURRICULUM OF PH.D programme



4.5 COMMITTEES FOR OVERALL SUPERVISION OF THE PHD- Oral Pathology PROGRAM

1. PhD Admission Committee (AC)
2. Board of Advanced Studies & Research (BASAR)
3. Research Ethical Committee (REC)
4. PhD Synopsis Review Committee
5. Postgraduate Medical Education Committee (PGMEC)

SECTION V

5. METHODS OF EVALUATION

Program Output Evaluation

5.1 PROGRAM OUTPUT IS EVALUATED THROUGH:

- **Formative Assessments** (through regular feedback)
- **Summative Assessment** (through Examination)

5.2 ASSESSMENT PROCEDURE

- Assignments/tests/logbook

(The performance of every student shall be continuously monitored and assessed throughout the training. During training student's performance shall be evaluated by taking quizzes, assignments, mid- term examination, laboratory reports, project presentations and will be

maintained as “LOG BOOK”)

- There will be Continuous Internal Assessments of each candidate during the training period. These Continuous Internal Assessments will include Assessments/Quiz/assigned tasks and supervisor’s Review Report.
- There shall be two annual comprehensive examinations

5.3 COMPREHENSIVE EXAMINATION

At the end of the year 1, the candidates are supposed to appear in the first year review examination. The examination shall be arranged and conducted by Postgraduate Examination department. Candidates need to provide evidence of completion of year one credit hours in the form of attendance certificate issued by the Ph.D Co-ordinator.

5.4 FORMAT OF COMPREHENSIVE EXAMINATION:

The examination shall be comprised by two theory papers and a viva voce examination. The distribution of marks shall as under:

- Select the single best choice type questions: 50%
- Short answer question: 30%
- Viva voce examination: 20%

5.5 RESULT

The candidates are supposed to secure at least 70% marks to get through. Less than 70% shall be declared fail.

5.6 RE-SIT

There is only one re-sit allowed. If candidate fails in the re-sit his/her course admission shall be terminated automatically. There is no right of appeal in case of failure and the decision of the university shall be considered final.

5.7 Ph.D THESIS

THESIS REQUIREMENTS

- The degree of Doctor of Philosophy (Ph. D) shall be awarded to a candidate on the basis of original research work incorporated in a thesis, approved by the examiners and successfully defended by the candidate in viva voce and open defence.

- It is mandatory that the scholar has completed the credit hours as per HEC guidelines.
- The thesis shall demonstrate that the scholar has technical expertise in research and the field of study. The thesis shall be a novel contribution to the existing literature.
- The thesis shall be written in English.
- The candidate must have got one article published in HEC recognised journal from Ph.D research work.
- A thesis cannot be submitted as joint work by more than one candidate.

THESIS THAT MAY NOT BE SUBMITTED

Research Work or parts of a research work that has been approved as the basis for previous examinations or degrees may not be submitted for assessment. The thesis may not be submitted for assessment in more than one academic programme at LUMHS.

SUBMISSION OF THE PH.D THESIS

The following documents must be enclosed with the application:

- The thesis prepared in the approved format in accordance with LUMHS Ph.D rules.
- Undertaking that the doctoral work has not been submitted for assessment at another institution duly signed by all supervisors and student.
- Prescribed fee challan.
- Examination form signed by the supervisor.

APPOINTMENT OF THESIS EVALUATION COMMITTEE

The Principle Supervisor is informed by the controller of postgraduate examination to propose names of at least 06 Ph.Ds with expertise in the field of respective research areas including 3 experts from technologically advanced countries and 3 from within the country. The controller of postgraduate examination shall send recommendations to select thesis evaluation committee of at least three members (at least two members from technologically advanced countries and one from within the country) for the assessment of the thesis to the Vice Chancellor for final approval. The controller shall also send the recommendations of examiners for the viva-voce examination proposed by the main supervisor to the Vice Chancellor for approval. The Vice Chancellor shall be the final authority to select the thesis evaluation committee.

The Examination Committee and Examination department set a deadline for the report from the thesis evaluation committee. Normally, the deadline must not exceed three (3) months.

If these criteria are not met, an explanation stating the grounds for this must be provided.

If a member withdraws from the thesis evaluation committee, the Controller of Postgraduate Examination may appoint an alternative member to the thesis evaluation committee.

CORRECTION OF FORMAL ERRORS IN THE THESIS

Once submitted, a thesis cannot be withdrawn until a final decision has been reached as to whether or not it can be approved for defense of the Ph.D degree. The Ph.D candidate has the opportunity to correct formal errors in the thesis after comments from thesis evaluation committee. The options for the correction of errors would be:

1. Minor errors- candidate need to submit within a month. In this regard minor errors would be defined as spelling and grammar errors, re-adjustment of figures and images, correction of referencing format and formatting of the headings and subheadings.
2. Minor errors- candidate need to submit within three months. In this regard minor errors would be defined as re-writing of any part of the thesis which should not be more than 10% of the thesis, adding or exclusion of any part where examiners do not agree.
3. Major errors- candidate need to submit thesis in six months. In this regard major corrections would be defined as re-writing of part of the thesis which should not exceed 50% of the thesis work or addition of some more work which needs revising data.
4. Major errors- candidate need to submit in one year. In this regard major corrections are defined as re-writing of the part of thesis which comprised of more than 50% of the thesis.

VIVA VOCE EXAMINATION

After the approval of thesis the candidate appears in the viva voce examination. The examiners for viva voce examination include one internal examiner from within the university and other from any university from within the country. The examiners must be Ph.D in the relevant subject or closely related subject. The controller shall send the recommendations of examiners for the viva-voce examination proposed by the main supervisor to the Vice Chancellor for approval. The Vice Chancellor shall be the final authority to select the thesis evaluation committee. The examiners shall submit a joint report to the controller of postgraduate examination. The controller of postgraduate examination shall then notify the outcome of the viva voce examination.

The outcome of the viva voce examination would be:

1. Successful candidate proceeds for the open defense
2. Re-sit within three months

Re-sit

Only one re-sit shall be allowed.

OPEN DEFENSE OF THE THESIS (DISPUTATION)

After passing the viva-voce examination, the Ph.D candidate shall be required to publicly defend the thesis within two months of declaration of result. The Ph.D candidate must submit a short summary of the thesis to the examination committee. The summary of the thesis shall be forwarded to all invitees before the open defense by examination committee.

The time and location of the open defense must be announced at least ten (10) working days in advance.

APPROVAL OF THE DOCTORAL EXAMINATION

Following open defense and the recommendations made by all examiners the candidate shall be declared successful. However, another open defense may be recommended by the examiners.

RE-SIT

The re-sit of the open defense shall be allowed within three months of the first. However single re-sit of the open defense shall be allowed.

5.8 CONFERRAL OF THE DEGREE

On the basis of the approved required coursework or other academic training, the research work, the academic thesis, viva-voce and the public defense; the degree of Doctor of Philosophy is conferred by the LUMHS on the candidate. The controller of postgraduate examination issues the Degree and marks Certificate. In the marks certificate, information must be provided about the required coursework, credit hours or other academic training in which the candidate has participated, the title of the thesis, and the names of supervisors.

5.9 Ph.D PUBLICATION POLICY:

For award of PhD degree, a PhD researcher shall be required to publish research articles meeting the following criteria: At least:

- i. One research article in W category journal or two research articles in X category journals.

- ii. The PhD researcher shall be the first author of these publications.
That will be followed by supervisor, cosupervisor and any other contributor.
- iii. The research article shall be relevant to the PhD research work of the PhD researcher.
- iv. The article shall be published after approval of the research synopsis.
- v. The article shall be published in a relevant research journal.

5.10 HEC REQUIREMENTS AT COMPLETION OF DEGREE:

The following documents will be submitted to the HEC following the completion of studies:

A duly filled completion form will be sent to the HEC from the Office of the Controller of Examinations of the university notifying the HEC that the PhD scholar has completed all the requirements for the award of the PhD degree.

A Copy of PhD Dissertation for including in PhD Country Directory and for attestation of the PhD degree by the HEC.

5.11 PMDC REQUIREMENTS AT COMPLETION OF DEGREE:

All PG students after completing their PhD Oral Pathology degree shall be registered by the Council.

5.12 SUPPORT AND COUNSELLING OF TRAINEES:

The University in collaboration with the profession, will ensure that a system for support, counselling and career guidance of trainees. Counselling shall be provided based on monitoring the progress in training and program. (PMDC policy 2023)

SECTION VI

6. TRAINING REQUIREMENTS

- The university offers full time Ph.D programme, however, the faculty of the LUMHS is allowed to pursue their Ph.D programme, while having their departmental responsibilities intact which includes taking lectures.
- It is though very clear that during the course they shall not be allowed to take administrative responsibilities.
- Candidates with external funding or an external workplace must reside at LUMHS for at least 50% of course duration. The main supervisor has the task of ensuring that this training requirement is met.

6.1 ACADEMIC SUPERVISION

6.2 HEC APPROVED ACADEMIC SUPERVISORS

The principle/main academic supervisor must hold a doctoral degree in the relevant research field, his/ her name must be in enlisted in HEC approved/registered supervisors and must be a full time Faculty member of LUMHS. However the adjunct faculty members with doctoral degree and approved by HEC can also be the main supervisor for M.Phil leading to Ph.D and Ph.D programme. The Ph.D candidate must have at least two academic supervisors. The second supervisor can be chosen outside the University depending upon individual candidate's requirements. The students must be assigned both supervisors at the time of admission.

6.3 CO-SUPERVISORS

Co-supervisors are experts in the field who provide academic supervision and who share the academic responsibility for the candidate with the main supervisor.

6.4 CHANGE OF SUPERVISOR

The Ph.D student or main supervisor may apply for a change of supervisor. The application for change of supervisor must be written to the Director PG with full justification. The director PG shall forward the case to the PhD committee for final decision with the approval of Vice chancellor. The principle supervisor must be notified in connection with a change of supervisor. In special cases, the Ph.D committee may replace the principal supervisor without any request by the Ph.D student.

6.5 REVIEW AND PROGRESSION

The candidate must have regular contact with his or her supervisors. There are twelve mandatory supervisory meetings per year which needs to be documented and presented at the time of semi-annual, annual and final review.

6.6 THE ACT OF PLAGIARISM

In the case of research scholars who have copied, as confirmed by Ph.D committee, a research work/ dissertation/thesis of M.Phil. / Ph.D. degrees, his/her thesis shall be rejected and his/her research registration shall be terminated and also he/she shall be debarred from registering for any other programme in this University.

6.7 CHANGE OF REGULATIONS

The Academic Council of Liaquat University of Medical & Health Sciences, may revise, amend or change the regulations from time to time.

6.8 APPEALS

APPEAL AGAINST THE DECISION ON ADMISSION

The university's decision for admission is final and the candidates no right to challenge the decision.

APPEALS AGAINST EXAMINATION IN THE REQUIRED COURSEWORK OR RESEARCH TRAINING

Examinations that have been taken as part of the required coursework or research training may be appealed under University Appeal Rules 2012, concerning appeals relating to procedural errors in examinations. Suspicion of academic misconduct or attempted misconduct must be handled in accordance with LUMHS established rules for this.

APPEALS AGAINST REJECTION OF AN APPLICATION FOR ASSESSMENT OF THESIS AND REJECTION OF A PH.D THESIS,

Rejection of an application for assessment of a Ph.D thesis may be appealed under University Appeal Rules 2012, concerning appeals relating to procedural errors in examinations. Details of the grounds for such an appeal must be sent to the Ph.D Committee. The Ph.D Committee may annul or amend the decision if it finds that the appeal is justified.

Section VII

7.1 MODE OF TEACHING CURRICULUM

Annual

7.2 PROGRAM DELIVERY METHODOLOGY

- Tutorials
- Interactive Lectures
- Small Group Discussions
- Guided Self-study & SDLs
- Practical & OSPE Sessions
- Skill laboratory
- Presentations
- Seeking information through Journal clubs, library and Internet.
- Attending workshops, seminars, conferences
- Research work

7.3 THE OBJECTIVES OF THE TRAINING MAY ALSO BE ACHIEVED

THROUGH FOLLOWING MODES:

Assigning responsibilities of teaching the undergraduates (MBBS and M.Phil).

Seeking information through Journal clubs, library and Internet

Attending workshops, Seminars, conferences etc.

Arranging regular quiz sessions for students

Completion of assignments

Patient/case-based learning (CBL/PBL)

Flip classroom technique

Peer assisted learning (PAL)

Assisting/Supervising Research projects of undergraduates and M. Phil students.

7.4 WORKSHOPS FOR PH. D PROGRAM CANDIDATE

Academic writing

- Introduction to literature review
- Critical analysis of literature
- Thesis writing
- Research proposal writing
- Original article writing
- Introduction to academic writing

Research methodology / epidemiology

- Introduction to research (basic)
- Introduction to research (advance)
- Study design 1
- Study design 2
- Study designs in basic research
- Study design in clinical research
- Introduction to research data management
- Designing questionnaire

IT skills

- Introduction to MS word
- Advance MS word
- Introduction to PowerPoint
- Designing poster in PowerPoint
- Photograph editing with GIMP
- Endnote
- SPSS/ prism
- Literature search
- Excell
- Access

Communication skills

- Oral presentation skills
- Communicating with posters
- Preparing for viva
- Preparing for open defense

Ethics and Plagiarism

- Ethics in research
- How to avoid plagiarism in research

Biostatistics

- Introduction to biostatistics
- Handling data
- Descriptive statistics
- Univariate analysis
- Multivariate analysis
- Analysis of time dependent variable

SECTION VIII**8. REGULATIONS OF SUBMISSION OF SYNOPSIS****8.1 General rules**

All registered Ph.D candidates are required to submit a synopsis/ research proposal before commencement of the study. Two hard copies of the synopsis should be submitted to Director Medical Research centre, which shall forward the thesis to the Ph.D coordinator and Ph.D committee.

8.2 PREPARATION AND SUBMISSION OF SYNOPSIS**Word limit**

The synopsis should not be more than 4000 words (inclusive of appendices, footnotes, tables, and bibliography).

Content of Synopsis

Title page

Summary of the project

Introduction/ background

Material & Methods/ Methodology

Strengths and limitations

Summary of the project

The summary should state a clear outline of the research project in no more than 250 words.

The summary should include statements regarding:

- Research problem

- Main objective (s)
- Theory
- Methodology

Introduction

Must include followings:

- Introduction of the project
- Literature review defining the gap
- Rationale of the project
- Hypothesis

This section should not exceed 1000 words

Methodology

This section should give clear description of the methods, which must include:

- Description of samples
- Equipments required/Questionnaire
- Chemicals required
- Methods of data collection
- Methods of data analysis

This should not exceed 1000 words

Strengths and limitations of the project

8.3 General guideline for synopsis writing

- Synopsis must not exceed 25 pages using A4 size paper
- Text should be type written with a margin of at least 2 inches, on the left side of the page, and of at least 1 inch on other sides.
- Typing specifications

Line space:

Double space line

Font size:

Title Page	18-22
Headings / subheadings	14-20
Text	10-12

Footnotes 8-10

Footnotes be given on the same page where reference is quoted

Font type:

Ariel, Times New Romans or Verdana

- Binding specifications
Synopsis should be soft or spiral bound
- References should be given in Author date/ Harvard style

LIAQUAT UNIVERSITY OF MEDICAL AND HEALTH SCIENCES, JAMSHORO



TITLE OF THE THESIS

A

Synopsis/ research proposal

Submitted to the

Liaquat University of Medical & Health Sciences

Jamshoro, Pakistan

For the Degree

Of

DOCTOR OF PHILOSOPHY

In

(Subject)

By

X.Y.Z (Full name of candidate)

Under the supervision of

Dr. A.B.C. (full name of the Supervisor)

Year

8.4 REGULATIONS FOR THE SUBMISSION OF THESIS

General rules

Students are required to submit a thesis for examination after their period of registered study and before the examination. Two copies of the thesis should be submitted to Ph.D Co-ordinator which shall forward the thesis to the Examiners through Ph.D committee and Controller of examination. The thesis presented for examination must be the result of work done mainly while the student is registered as a Ph.D student of this University.

The thesis must be the result of the student's own work. The requirement does not preclude a student obtaining limited assistance with proof-reading and with the routine collection and/or processing of data under guidelines and instructions clearly devised by the student. When such help is obtained it should be with the prior approval of the supervisor who must be satisfied that the spirit of the 'own work' requirement is not breached.

8.5 PREPARATION AND SUBMISSION OF THESES

Word limit

The thesis should not be more than 100,000 words (inclusive of appendices, footnotes, tables, and bibliography); the University may withhold from examination a thesis that exceeds this word limit.

Content of Thesis

The thesis normally follows the pattern of an original article. The usual flow of thesis contents is as follows:

Abstract

Introduction/ background

Material & Methods (Separate chapters where ever required)

Results

Discussion

Conclusion

However for individual research projects thesis layout can be modified as per requirement of the project with agreement of the supervisor.

Presentation of thesis

Soft bound version for Examination

Theses should be presented on A4 paper, normally with 12 font typescript. There should be a margin of at least 1.5 inches, preferably 2 inches (5cm), on the left side of the page, both for typescript and diagrams, to allow for binding. Other margins should be of at least 1 inch (2.5 cm).

Hard bound Version

Thesis should be presented on A4 paper, normally with 12 font typescript, and good quality printing to allow for reproduction. There should be a margin of at least 1.5 inches, preferably 2 inches (5cm), on the left side of the page, both for typescript and diagrams, to allow for binding. Other margins should be of at least 1 inch (2.5 cm). Candidates may have their hardbound copy/ies printed either single sided.

Submission

Candidates must submit four soft-bound copies of their thesis eg spiral-bound or plastic binding to Director Medical Research centre, which shall forward the thesis to the Ph.D coordinator and Ph.D committee. Thesis presented in lever-arch or box-files shall **not** be accepted.

After approval of the thesis students are advised to submit four hard bound thesis to the Ph.D Co-ordinator

- * 1 copy of a summary of thesis (not more than two pages)
- * 1 copy of the title page
- * These copies are in addition to those which you are required to bind into the thesis.

Final Submission

The first page of the thesis should be a title page, formatted containing details as shown below

LKB1 A NOVEL THERAPEUTIC TARGET IN BREAST CANCER MANAGEMENT

(full name of student)

**HIBA BATOOL SYED
MBBS**

**Thesis submitted to the Liaquat University of Medical & Health Sciences for the degree of
Doctor of Philosophy**

(month & year of graduation)

DECEMBER 20XX

The title page should be followed by:

The Abstract page

List of published articles

The Acknowledgements page

Table of content (also include legend of tables and figures)

Abbreviations.

The Main Body of the Thesis

References

Professional **black** buckram binding is required. The sheets should be whip-stitched and bound with white end-papers and linen joints into a buckram cover.

The spine should be lettered in gold in such a way as to be readable when the volume is lying flat with the front cover uppermost. It should show the volume number (in the case of two or

more volumes), the degree for which the thesis is submitted, the year of graduation and the name of the candidate, as follows:

VOL No. Ph.D 20XX HIBA BATOOL SYED

The title of the thesis should be embossed in gold letters on the front cover in a position above the centre, as follows:

LKB1 A NOVEL THERAPEUTIC TARGET IN BREAST CANCER MANAGEMENT

Declaration along with the thesis

I declare that the thesis entitled

Submitted by me for the degree of Doctor of Philosophy (Ph.D) is the record of research work carried out by me during the period from to under the supervisor of And the co-supervisor of (wherever applicable) and has not formed the basis for the award of any degree, diploma associateship, fellowship, titles in this or any other University or other similar institution of higher learning.

Date:

Place:

Signature of the candidate

(Name)

Format of the certification to be given by the Supervisor /Co-Supervisor (in all copies)

I certify that the thesis entitled

Submitted for the degree of Doctor of Philosophy by Mr. /Ms..... is the record of research work carried out by him/her during the period from to Under my guidance and supervision and that this research work has not formed the basis for the award of any degree, diploma, associate-ship, fellowship or other similar titles in this university or any other university or institution.

Date:

Place:

Signature of the Supervisor

with Seal

Date:
Place:

**Signature of the Co-Supervisor
with Seal**

SECTION-IX

9. PROGRAM RESOURCES

9.1 Department of Oral Pathology

Department of anatomy participate in the following degree programs and caters over 1300 students.

- BDS
- Mphil
- Dental technicians

9.2 TEACHING ACTIVITIES

The department conducts lectures, tutorials, problem-based learning sessions and small group discussions. In addition, Histology practical sessions and cadaver dissection sessions are also conducted

9 Evaluation & Monitoring of the Training Program

10.1 Progress Report

- a) There will be a bi-annual review of research progress of the PhD Scholar by the Supervisor
- b) At the end of every six months after confirmed registration, PhD

scholar would submit a summary of the progress of the research work through the Supervisor to dean.

- c) In case of more than two unsatisfactory reports forwarded to the PhD Committee, the scholar will be notified in written and given reasonable opportunity to respond to the PhD Committee. In Case PhD Scholar fails to satisfy the committee, the committee shall recommend removal of his/her name from university register.
- d) There will be a time of 15 days given to the scholar to appeal to the BASAR through the Vice Chancellor against the decision and final decision BASAR will be implemented.

10.2 Evaluation methodologies

- To make sure that residents/students are evaluated fairly, the evaluators will attend workshops on evaluation methodologies.
- There will be structured viva and written assessments. Keys will be provided to evaluators for checking written papers/viva .
- For annual confidential written evaluations of the PGT by the students, Feedback proforma will be designed in which all aspects related to teaching like Knowledge, punctuality, tolerance level, professionalism, communication skills and behaviour with student will be covered.
- To ensure confidentiality students will be asked to fill proforma without showing their identity, different students will be asked to fill

proforma at different times.

- All data will be computerized and a pass code will be generated so only concerned person will be able to access these feedback proforma.
- A confidential letter will be written to PGT in which details of his/her annual Feedback will be told including all positive and negative aspects.
- He /she will be called in Supervisor's office to discuss areas where improvement is required.
- He/she will be encouraged to convert weaknesses into strengths by addressing his/her problems.

Students will be evaluated based on:

- Attendance record (at least seventy-five percent for each year of study).
- Performance of the scheduled / desired activity
- Participation in discussion (tutorial and seminar etc.)
- Efficiency and effort put in the assignment (lectures, demonstration, Computer training, etc.)
- Practical work
- Presentation and Computing skills

Standard of Passing the course work

- Cleared the comprehensive exams.
- Criteria for Award of PhD Degree

PhD level course work of at least 18 credit hours followed by course exam and a comprehensive examination, completion of research work along with thesis defense will be essential for the award of PhD degree.

- The thesis must be examined by two foreigner examiners from technologically/academically advanced countries (see 7.5 for details)
- Date of defense of the dissertation should be notified.
- At least one Published research paper in an HEC approved W category or 2 in X category journal is essential for the award of PhD degree.

4.1 Evaluation & Monitoring of the Training Program

The proposed / suggested evaluation of the training program will be done by:

- a. The Students
- b. The Faculty members (Program team Members)
- c. The Supervisor
- d. Self-Assessment with External and Internal Evaluators (SAR)

A. Course contents

Biostatistics and Research Methodology

- Basic principles of biostatistics and study as applied to dentistry and research
- Collection/organization of data/measurement scales presentation of data analysis.
- Measures of central tendency.
- Measures of variability.
- Sampling and planning of health survey.
- Probability, normal distribution and indicative statistics.
- Estimating population values.
- Tests of significance (parametric/non-parametric qualitative methods.)
- Analysis of variance
- Association, correlation and regression.

Teaching strategy

- Didactic lectures on biostatistics and discussion on research methodology by eminent researchers.
- Two - day P.G. orientation course including general approach PG course, library and main dissertation, journal club topic selection and presentation, seminars, clinicopathological meets, teaching methodology and use of audiovisual aids.

2) Applied Gross Anatomy of Head and Neck including Histology:

- Temporomandibular Joint
- Trigeminal nerve and facial nerve
- Muscles of mastication
- Tongue
- Salivary glands
- Nerve supply; blood supply, lymphatic drainage and venous drainage of Oro dental tissues.

- Embryology
 - ✓ Development of face, palate, mandible, maxilla, tongue and applied aspects of the same
 - ✓ Development of teeth and dental tissues and developmental defects of oral and maxillofacial region and abnormalities of teeth
- Maxillary sinus
- Jaw muscles and facial muscles

Genetics:

Introduction modes of inheritance, chromosomal anomalies of oral tissues and single genetic disorders.

Teaching strategy

- To be covered as didactic lectures.
- Posting in department of anatomy for dissection of head, face and neck

3) Cell Biology:

- Cell-structure and function (ultrastructural and molecular aspects), intercellular junctions, cell cycle and division, cell cycle regulators, cell - cell and cell - extra cellular matrix interactions.
- Detailed molecular aspects of DNA, RNA, and intracellular organelles, transcription and translation and molecular biology techniques.

Teaching strategy

To be covered as seminars and didactic lecture.

4) Biochemistry:

- Chemistry of carbohydrates, lipids and proteins.
- Methods of identification and purification.
- Metabolism of carbohydrates, lipids and proteins.
- Biological oxidation.

- Various techniques cell fractionation and ultra filtration, centrifugation, Electrophoresis, Spectrophotometry, and radioactive techniques.

Teaching strategy

- Topics to be covered as didactic lectures.
- Postings to the department of biochemistry to familiarize with various techniques
- Record book to be maintained.

5) General Microbiology:

- Definitions of various types of infections.
- Routes of infection and spread
- Sterilization, disinfection and antiseptics.
- Bacterial genetics.
- Physiology and growth of microorganisms.

Teaching strategy

- To be covered as seminars and didactic lectures.
- Record book to be maintained.

6) Basic Immunology

- Basic principles of immunity, antigen and antibody reactions.
- Cell mediated immunity and Humoral immunity.
- Immunology of hypersensitivity.
- Immunological basis of the autoimmune phenomena.
- Immunodeficiency with relevance to opportunistic infections.
- Basic principles of transplantation and tumor immunity.
-

Teaching strategy

To be covered as didactic lectures.

7) Systemic microbiology/applied microbiology

Morphology, classification, pathogenicity, mode of transmission, methods of pre collection and transport of specimen, for laboratory diagnosis, staining methods, comi culture media,. interpretation of laboratory reports and antibiotic sensitivity tests.

- Staphylococci
- Streptococci
- Corynebacterium diphtheria
- Mycobacteria
- Clostridia, bacteroides and fusobacteria © Actinomycetales
- Spirochetes

Virology:

General properties: structure, broad classification of viruses, pathogenesis, pathology of viral infections.

Herpes virus: list of viruses included, lesions produced, pathogenesis, latency principles and laboratory diagnosis.

Hepatitis virus: list of viruses, pathogenesis, and mode of infection, list of diagnostic tests, and their interpretations, methods of prevention and control.

Human Immunodeficiency virus: structure with relevance to laboratory diagnosis, type of infection, laboratory tests and their interpretation, universal precautions, specific precautions and recent trends in diagnosis and prophylaxis.

Mycology:

- General properties of fungi, classification bases on disease, superficial, subcutaneous, deep opportunistic infections.
- General principles of fungal infections, diagnosis rapid diagnosis method of collection of sample and examination for fungi.

Teaching strategy

To be covered as seminars and didactic lectures

- Postings to the dept. of microbiology to familiarize with relevant diagnostic methods
- Record book to be maintained

8) Basic histo techniques and microscopy:

- Routine hematological tests and clinical significance of the same.
- Biopsy procedures for oral lesions. Processing of tissues for Paraffin lesions.
- Microtome and principles of microtomy.
- Routine stains, principles and theories of staining techniques 1icroscope, principles and theories of microscopy.
- Light microscopy and various other types including electron microscopy.
- Methods of tissue preparation for ground sections, decalcified sections.

Approach:

- Topics to be covered as seminars.
- Preparation of ground and decalcified sections, tissue processing, sectioning and staining.
- Record book to be maintained

First Year (Second Semester)

1) Physiology (General and oral)

- Saliva
- Pain
- Mastication
- Taste Deglutition
- Wound healing
- Vitamins (Influence on growth, development and structure of oral soft and hard tissues and paraoral tissues.)
- Calcium metabolism.
- Theories of mineralization. Tooth eruption and shedding.

- Hormones. (Influence on growth, development and structure of oral soft and hard tissues and para oral tissues.)
- Blood and its constituents.

- **Teaching strategy**

To be covered as didactic lectures.

2) General Histology:

light and electron microscopy considerations of Epithelial tissues and glands, bone, hematopoietic system, lymphatic system, muscle, neural tissue, endocrinal system (thyroid, pituitary, parathyroid)

Teaching strategy

- Topics to be covered as didactic lectures.
- Postings in the department of anatomy and histology for slide discussion
- Record book to be maintained.

3) General Pathology:

- Inflammation and chemical mediators, thrombosis, embolism, necrosis, repair, degeneration, shock, hemorrhage pathogenic mechanisms at molecular level and blood dyscrasias, Carcinogenesis and Neoplasia.

Teaching strategy

To be covered as seminars and didactic lectures.

4) Oral Biology (oral and dental histology)

- Structure and function of oral, dental and paraoral tissues including their ultra structure, molecular and biochemical aspects.

- Study of morphology of permanent and deciduous teeth
(Lectures and practical demonstrations to be given by PG students)

Teaching strategy

- To be covered as seminars and didactic lectures.
- Slide discussion on histological appearance of normal oral tissues.
- Record book to be maintained.

5) Basic molecular biology and techniques:

experimental aspects - DNA extraction, PCR, western blotting.

Teaching strategy

- To be covered as didactic lectures
- Postings in centers where facilities are available for demonstration of routine molecular biology techniques.
- Record book to be maintained.

6) Research Methodology

- **Collection/organization of data / measurement scales presentation of data analysis.**
- **Sampling and planning of health survey.**
- **Analysis of Variance**
- **Association, correlation and regression.**

1) Oral pathology

- Developmental defects of oral and maxillofacial region and abnormalities of teeth

- Dental caries (Introduction, Epidemiology, microbiology, cariogenic bacterial including properties, acid production in plaque, development of lesion, response of dentine - pulp unit, histopathology, root caries, sequelae and immunology).
- Pulpal and Periapical diseases
- Infections of oral and Para oral regions (bacterial, viral and fungal infection)
- Non - neoplastic disorders of salivary glands
- Bone pathology
- Hematological disorders
- Physical and chemical injuries, allergic and Immunological diseases.
- Cysts of odontogenic origin
- Dermatologic diseases.
- Periodontal diseases
- Oral manifestations of systemic diseases
- Facial pain and neuromuscular disorders including TM) disorders
- Regressive alterations of teeth

Clinical Pathology:

- Laboratory investigations - Hematology, Microbiology and Urine analysis
- Postings to Clinical Pathology f0P relevant training
- Record book to be maintained.

2) Oral Medicine

- Diseases of Oral Mucosa
- Bacterial
- Viral
- Oral Candidiasis
- Vesiculo Bulbous lesions
- White lesions
- Premalignant lesions
- Oral Cancer
- Salivary glands diseases
- Facial pain
- Oral manifestation of skin diseases
- Oral manifestation systematic diseases

- Disorder of T.M.J

3) Oral Microbiology and immunology

- Normal Oral microbial flora
- , Defense mechanism of the oral cavity
- Microbiology and immunology of Dental caries and Periodontal diseases © Dental caries (Introduction, epidemiology, microbiology, cariogenic bacteria including properties, acid production in plaque, development of lesion, response of dentin-pulp unit, histopathology, root caries, sequelae and immunology)
- Tumor immunology
- Infections of Pulp and Periapical and periodontal tissues Oral sepsis and Bacteremia
- Microbial genetics
- Infections of oral and Para oral regions (bacterial, viral and fungal infections)

Teaching strategy

To be covered as seminars

4) Specialized histopathologic techniques and special stains:

Special staining techniques for different tissues.

Immunohistochemistry

Preparation of frozen sections and cytological smears

Teaching strategy

Training to be imparted in the department or in other institutions having the facility Record book to be maintained

Recording of Case history and Clinico-pathological discussions:

Teaching strategy

Posting to the department of Oral medicine, Diagnosis and Radiology and Oral and Maxillofacial surgery

Record of case histories to be maintained

5) Laboratory techniques and Diagnosis

- Routine hematological tests and clinical significance of the same Microtome and principles of microtomy Routine stains, principles and theories of staining techniques
- Microscope, principles and theories of microscopy
- Light microscopy and various other types including electron microscopy
- Methods of tissue preparation for ground sections, decalcified sections. Special' stains and staining techniques for different tissues immunohistochemistry
- Preparation of frozen sections and cytological smears

1) Oral oncology

Detailed study including Pathogenesis, molecular and biochemical changes of tumor like lesions and premalignant lesions affecting the hard and soft tissues of oral and paraoral tissues

Tumor markers

Teaching strategy

- To be covered as seminars
- Posting to a Cancer center to familiarize with the pathological appearances, diagnosis,
- radio-diagnosis and treatment modalities.

2) Forensic Odontology:

Legal procedures like inquest, medico-legal evidences post mortem examination of violence around mouth and neck, identification of deceased individual-dental importance.

Bite marks rugae patterns and lip prints.

Teaching strategy

To be covered as seminars

Posting to a Cancer center to familiarize with the pathological appearances, diagnosis, and radio-diagnosis and treatment modalities

Histopathology - slide discussion

Record book to be maintained

3) Recent Advances in oral pathology

- Detailed description of diseases affecting oral mucosa, teeth, supporting tissues & jaws
- Cysts of the oral & Para-oral regions
- Systemic diseases affecting oral cavity.

Teaching strategy

Seminars & Slide discussions. Record notebook to be maintained. Training in histo-pathology slide reporting. **Experimental aspects of Oral diseases**

Teaching strategy

Posting is desirable in Centers where animal experimentation is carried out to familiarize with laboratory technique's, upkeep & care of experimental animals.

Recent advances in Oral Pathology.

Teaching strategy:

Update of knowledge in Oral Pathology through study of recent journals & Internet browsing. Journal Clubs & Group discussions

4) Academic activities

- Library assignment to be submitted at the end of 6 months

- Commencement of dissertation work
- Journal clubs and seminars to be presented by every PG student
- Clinico - pathological discussions once in a month by every PG student
- To attend interdepartmental meetings.
- Lecture and practical classes and slide discussions to be taken for II BDS
- students in oral and dental anatomy, dental histology and oral physiology.
- Year ending examination (theory and practical) to be conducted by the college.

- Non-neoplastic disorders of salivary glands.
- Bone pathology
- Physical and chemical injuries, allergic and Immunological diseases.
- Cysts of odontogenic origin
- Oral manifestations of systemic diseases

Teaching strategy

To be covered as seminars Slide discussions of the same Record book to be maintained

Academic activities

- Visit to center out Animal experimentation to familiarize with Laboratory techniques, upkeep and care of animals
- Completion of Dissertation work and submission of the same, six months before the Final Examination
- Study of Journals, Internet Browsing, and group discussions, to update knowledge in the recent advances in Oral Pathology
- Lecture and Practical demonstrations for third B.D.S students in Oral pathology and Microbiology
- Reporting of histopathology slides
- Journal clubs and Seminars to be presented by every post graduate students twice in a month

- Clinico-pathological discussions by every student once in a month
- To attend Interdepartmental meetings.

- Seminars
- Slide Discussion
- Log Book

Visit to center _____ other departments in different hospitals

Academic activities _____ thesis

Monitoring learning progress: To evaluate students, by staff of the department

Monitoring learning Progress

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