REGULATIONS & CURRICULUM
FOR DOCTOR OF PHILIOSOPHY (PH. D)
IN HUMAN ANATOMY &CELL BIOLOGY PROGRAMME

AT THE LIAQUAT UNIVERSITY OF MEDICAL AND HEALTH SCIENCE (LUMHS), JAMSHORO, PAKISTAN

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 Commercialisation (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:

- 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.

- To impart evidence-based research oriented medical education in the field of Anatomy and associated subspecialties.
- To cultivate a community of scholars dedicated to advancing knowledge in field of anatomy through rigorous research, interdisciplinary collaboration, and innovation.
- To inculcate the values of mutual respect and ethical practice of medicine.
- To meet the requirements of Higher Education Commission (HEC) and Pakistan Medical and Dental Council (PM&DC) up to the level of satisfaction with accuracy & transparency.

1.3 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.
- To overcome deficiency and enhance standards of faculty in the field of Anatomy by establishing Anatomy Department of LUMHS as a number one seat of learning Anatomy in Pakistan and through it, make available Anatomy faculty; which can act as a change agent for bringing up the standards of graduate as well as undergraduate Medical and Dentistry programs of Pakistan in general and Sindh in particular and make this program one of the best in Pakistan, covering all aspects of the specialty of Anatomy.

SECTION-II

2. INTRODUCTION TO PROGRAM

2.1 Starting PHD Anatomy at LUMHS

PhD programs in any subject are designed to act as facilitators for original research to expand the existing body of knowledge in that subject. Award of PhD degree marks the successful culmination of an intellectual pursuit and recognition that it has contributed new knowledge to the benefit of humanity and society. Presently, very few institutions in Pakistan offer a PhD degree in Anatomy among them LUMHS is with those pioneers. Prof Dr Samreen Memon started Ph.D in 2011 and till time 04 Ph.D candidates were awarded with the degree and 05 are in process. In line with the tradition of excellence Lumhs wants Anatomy PhD to be carefully designed highly elaborate program, fostering research outlook and broadening horizons. To provide students opportunity to achieve a high level of scholarly competence to contribute novel research to existing knowledge in the anatomical sciences besides teaching the anatomical disciplines at undergraduate, postgraduate and professional levels.

2.2 Scope of Anatomy Ph.d program

Anatomy is fundamental to medical practice, guiding physicians in diagnosing diseases through physical examination and imaging. It is equally vital in allied health fields for interpreting clinical signs and managing patients. Proficiency in macroscopic and microscopic anatomy enables medical graduates to practice effectively and supports scientists in advancing anatomical research.

Recent decades have seen rapid advancements in imaging technologies—such as CT, MRI, endoscopy, and 3D visualization—alongside minimally invasive therapies that require precise anatomical knowledge for image interpretation and targeted treatment.

Despite this growing relevance, anatomical education faces a crisis due to a shortage of qualified faculty. Given the increasing student demand and the critical need for anatomical expertise, it is essential to establish our own PhD program in Anatomy.

2.3 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 academician, researchers and field practitioners for community services.
4. To improve health standards of the community in this underdeveloped region of the world.

2.4 Aims / objectives

The objective of the Ph.D programme is to qualify candidates to conduct research of a high international standard and perform other types of work with exacting requirements in terms of scientific insight and analytical thinking in accordance with sound scientific practice and established standards for research ethics. This programme is intended to provide the candidate with knowledge, skills and expertise in keeping with the national qualifications framework. The objective is to contribute to the internationalization of research, the academic community and the candidate.

The Ph.D programme at LUMHS is a research program aiming to train Ph.D students at an international level to independently undertake research, development and teaching assignments in the private and public sectors, for which a broad knowledge of research is required. The Ph.D programme mainly comprises active research training under supervision.

2.5 Program Outcomes

Knowledge Domain Outcomes

Graduates will be able to:

1. Demonstrate advanced and integrative knowledge of human gross anatomy, microscopic anatomy, developmental biology, and cell biology, including their clinical and research applications.
2. Critically analyze scientific literature in anatomy and related disciplines, identifying gaps and proposing new research questions.
3. Explain the cellular and molecular mechanisms underlying human structure and function, development, and disease processes.
4. Apply theoretical knowledge to the design of experimental models and teaching strategies in human anatomy and cell biology.

Skills Domain Outcomes

Graduates will be able to:

1. Design and conduct independent research using advanced techniques in histology, imaging, molecular biology, and morphometry.
2. Develop and validate experimental protocols for anatomical and cell biological investigations using both human and animal models.
3. Use digital tools and technologies (e.g., 3D reconstruction, virtual dissection, image analysis software) for teaching and research in anatomy.
4. Communicate research findings effectively, both orally and in writing, through scientific publications, presentations, and teaching.

5. Mentor and supervise undergraduate and postgraduate students, demonstrating effective academic and research guidance.

Behavior / Attitude Domain Outcomes

Graduates will:

1. Demonstrate ethical conduct in research, including informed consent, animal welfare, and data integrity.
2. Exhibit professionalism and responsibility in academic, research, and collaborative environments.
3. Promote interdisciplinary collaboration, showing openness to integrating insights from genetics, physiology, and pathology into anatomical research.
4. Commit to lifelong learning, keeping up-to-date with advances in anatomical sciences and pedagogy.
5. Foster critical thinking and curiosity in themselves and others through reflective practice and academic engagement.

2.6 Alignment of Program Objectives with University Mission Statement

Objectives have been defined in the light of LUMHS Mission statement that requires output (health professional) as competent and ethically sound. This is achieved thorough predefined set of course content, availability of requisite facilities and feedback & evaluation of the program for continuous improvement.

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 Anatomy

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.

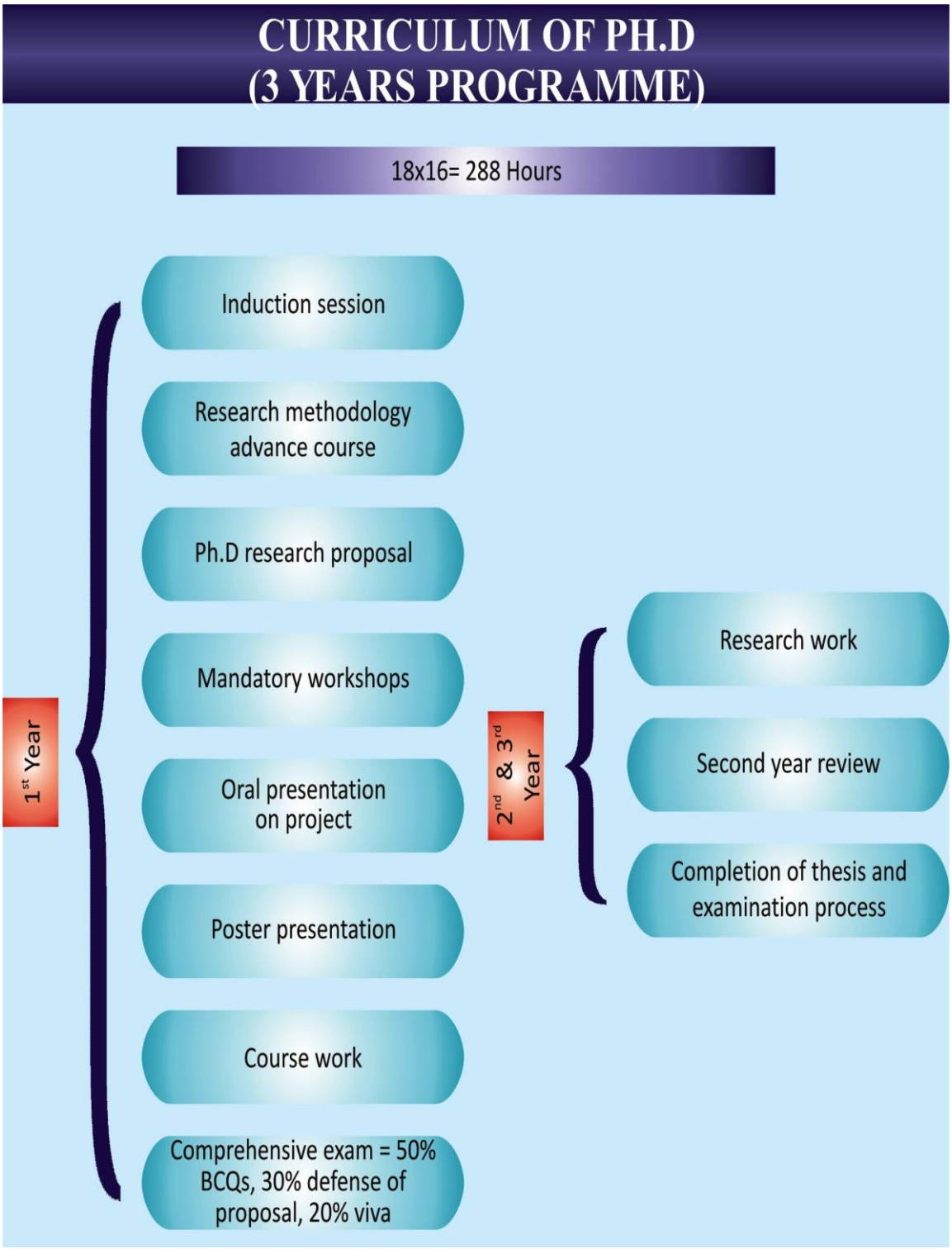
4.3 CURRICULUM DESIGN

The Graduate of PhD in Anatomy 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 Anatomy, 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- ANATOMY 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 Anatomy 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: **Signature of the candidate**

Place: **(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: **Signature of the Supervisor**

Place: **with Seal**

Date: **Signature of the Co-Supervisor**

Place: **with Seal**

SECTION-IX

9. PROGRAM RESOURCES

9.1 ANATOMY DEPARTMENT

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

- MBBS
- BDS
- Doctor of physiotherapy(DPT)
- IBT
- Nursing
- Medical Laboratory Technology(MLT)

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

9.3 FACULTY:

Department of Anatomy is enriched with full-time dedicated, qualified and experienced faculty for teaching

Name of faculty member	Qualification	Designation
Prof. Dr. Samreen Memon	MBBS , PhD (Anatomy) ,CHPE (MHPE)	Professor & Chairperson
Prof. Dr. Pushpa Goswami	MBBS, M-Phil, Ph.D (Anatomy), CHPE, (MHPE)	Professor
Dr. M. Yaqoob Shahani	MBBS, D.o, Ph.D (Anatomy), CHPE	Associate Professor
Dr. Farhana Rajpar	MBBS, M-Phil (Anatomy) , CHPE	Associate Professor
Dr. Pashmina Sheikh	MBBS , M-Phil (Anatomy), CHPE	Associate Professor
Dr. Umbreen Bano	MBBS ,Ph.D (Anatomy) , CHPE	Assistant Professor
Dr. Fahmida Gul	MBBS, M-CPS, Ph.D (Anatomy) CHPE, (MHPE)	Assistant Professor
Dr. Sadia Affandi	MBBS, M.Phil	Assistant Professor
Dr. Abdul Rauf	MBBS, (M.Phil)	Lecturer
Dr. Sana Shabbir	MBBS, M.Phil	Lecturer
Dr. Rabia Bughio	MBBS, M.Phil	Lecturer
Dr. Khalida Parveen	MBBS, M.Phil	Lecturer
Dr. Anas Raza	MBBS, M.Phil	Lecturer
Dr. Aqsa	MBBS	Lecturer
Dr. Ghulam Murtaza	MBBS	Lecturer
Dr. Shereen Sajjid	MBBS	Lecturer

9.4 BUILDING AND INFRASTRUCTURE:

1. Office No. 01 Dr. Muhamamd Yaqoob Shahani
2. **Office No. 02 office of the Chairperson**
3. Office No. 03 Professor Dr. Pushpa Goswami Professor Room
4. Office No. 04 Dr. Farhana Associate Professor Room
5. Office No. 05 Record office Room
6. Office No. 06 Dr. Pashmina Associate Professor Room
7. Office No. 07 Dr. Gul & Dr. Abdul Rauf Memon Lecturers Room
8. Office No. 08 Students Section Room

Office No. 09 Female Faculty Cabinets/ Rooms

Female Cabinet No. 01

Female Cabinet No. 02

Female Cabinet No. 03

Female Cabinet No. 04

Female Cabinet No. 05

Female Cabinet No. 06

Female Cabinet No. 07

10. Room No. 10 Departmental Kitchen
11. Office No. 11 Store Room
12. Office No. 12 Seminar Room No. 1
13. Office No. 13 Seminar Room No. 2

Office No. 14 Male Faculty Cabinets/ Rooms

Male Cabinet No. 01

Male Cabinet No. 02

Male Cabinet No. 03

Male Cabinet No. 04

Male Cabinet No. 05

Male Cabinet No. 06

Male Cabinet No. 07

Male Cabinet No. 08

Male Cabinet No. 09

Male Cabinet No. 10

15. Dissection Hall
16. Dissection Hall Office
17. Mortuary Plant Room

Demonstration Class Rooms

18. Demonstration Class Room No. 01
19. Demonstration Class Room No. 02
20. Demonstration Class Room No. 03
21. Demonstration Class Room No. 04
22. Demonstration Class Room No. 05
23. Demonstration Class Room No. 06
24. Demonstration Class Room No. 07
25. Lecture Hall
26. Lecture Hall Office
27. Histology Laboratory
28. Histology Class Room
29. Preparation room
30. Histology Laboratory Office

9.5 **LIST OF MODELS**

S.no	**List of Models**	**Number**
1	Muscles of leg and Hip	10
2	Dummies	10
3	Articulated Skeleton	10
4	Disarticulated half skeleton	40
5	Ligaments of foot & ankle	08
6	Ligaments of knee joint	14
7	Bones of lower limb	12
8	Model of foot	07
9	Muscles of arm & shoulder	09

10	Models of hand	07
11	Bones of upper limb	12
12	Thoracic organs with larynx	09
13	Human segmental lungs	08
14	Models of heart	10
15	Models of brain	10
16	Functional center brain	08
17	Models of ear	08
18	Models of head & neck	08
19	Head and neck with musculature	08
20	Skull on cervical spine	10
21	Skulls	20
22	Eye ball	08
23	Models of General embryology	25
24	Models of systemic embryology	20
25	Male dummies	08
26	Female dummies	08
27	Pelvis with ligaments	08
28	Female pelvis with viscera	07
29	Articulated pelvis	05
30	Old models	45
31	Full skeleton with viscera	01
32	Full skeleton with muscle marking	01
33	Half torso with axial section	01

9.6 LIST OF EQUIPMENT

S. NO	EQUIPMENT
1	COMPOUND MICROSCOPE (45 IN NO.)
2	THERMO SCIENTIFIC AUTOMATIC TISSUE PROCESSOR
3	THERMO SCIENTIFIC HISTOSTAR EMBEDDING CENTRE
4	THERMO SCIENTIFIC SECTION FLOATING BASES
5	THERMO SCIENTIFIC ELECTRONIC MICROTOME
6	THERMO SCIENTIFIC AUTOMATIC SLIDE STAINER
7	THERMO SCIENTIFIC CRYTOME
8	THERMO SCIENTIFIC METAL SLIDE STORAGE

9.7 LIST OF BOOKS AT DEPARTMENT

S.No.	Author	Title	Edition
1.	Young	Wheater's Functional Histology	6th ed
2.	Sadlar	Langman's Medical Embryology	12th ed
3.	Kereshna Gorg	B.D Churasia Human Anatomy Vol. I	7th ed
4.	Kereshna Gorg	B.D Churasia Human Anatomy Vol. II	7th ed
5.	Kereshna Gorg	B.D Churasia Human Anatomy Vol. III	7th ed
6.	Kith Moore	Clinically Oriented Anatomy	7th ed
7.	Snell	Clinical Neuro Anatomy	6th ed
8.	Snell	Clinical Anatomy	7th ed
9.	Frink H. Netter	Atlas of Human Anatomy	6th ed

10.	Gray's	Students Gray's Anatomy	1st ed
11.	Gray's	Anatomy	39th ed
12.	Moore	Developing Human Clinically OrientedEmbryology	9th ed
13.	Chummy	Last Anatomy	11th ed
14.	Anne MR Agur	Grant's Atlas of Anatomy	14th ed
15.	Saladin	Anatomy and Physiology	8th ed
16.	Abrahams	Clinical Atlas of Human Anatomy	8th ed
17.	Moore	Essential of Clinical Anatomy	6th ed
18.	Clemente	Anatomy A regional Atlas of Human Body	6th ed
19.	Scot	Operative Anatomy	3rd ed
20.	Tora tora	Principal of Anatomy & Physiology	11th ed

9.8 **ANATOMY BOOKS AT CENTRAL LIBRARY**

S. NO.	**AUTHOR**	**TITLE**	**EDITION**
1	**YOUNG**	**WHEATER'S FUNCTIONAL HISTOLOGY**	**6TH ED**
2	**SADLAR**	**LANGMAN'S MEDICAL EMBRYOLOGY**	**12TH ED**
3	**KERESHNA GORG**	**B.D CHURASIA HUMAN ANATOMY VOL. I**	**7TH ED**
4	**KERESHNA GORG**	**B.D CHURASIA HUMAN ANATOMY VOL. II**	**7TH ED**
5	**KERESHNA GORG**	**B.D CHURASIA HUMAN ANATOMY VOL. III**	**7TH ED**
6	**KITH MOORE**	**CLINICALLY ORIENTED ANATOMY**	**7TH ED**
7	**SNELL**	**CLINICAL NEURO ANATOMY**	**6TH ED**
8	**SNELL**	**CLINICAL ANATOMY**	**7TH ED**

9	**FRINK H. NETTER**	**ATLAS OF HUMAN ANATOMY**	**6TH ED**
10	**GRAY'S**	**STUDENTS GRAY'S ANATOMY**	**1ST ED**
11	**GRAY'S**	**ANATOMY**	**39TH ED**
12	**MOORE**	**DEVELOPING HUMAN CLINICALLY ORIENTED EMBRYOLOGY**	**9TH ED**
13	**CHUMMY**	**LAST ANATOMY**	**11TH ED**
14	**ANNE MR AGUR**	**GRANT'S ATLAS OF ANATOMY**	**14TH ED**
15	**SALADIN**	**ANATOMY AND PHYSIOLOGY**	**8TH ED**
16	**ABRAHAMS**	**CLINICAL ATLAS OF HUMAN ANATOMY**	**8TH ED**
17	**MOORE**	**ESSENTIAL OF CLINICAL ANATOMY**	**6TH ED**
18	**CLEMENTE**	**ANATOMY A REGIONAL ATLAS OF HUMAN BODY**	**6TH ED**
19	**SCOT**	**OPERATIVE ANATOMY**	**3RD ED**
20	**TORA TORA**	**PRINCIPAL OF ANATOMY & PHYSIOLOGY**	**11TH ED**

SECTION X

10 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)