Syllabus for PhD.

Research Scholars in

Health Sciences and Inter-Disciplinary areas (Pre-Ph.D. Examination)
PREAMBLE

KLE University is determined to encourage quality research in different disciplines of Health Sciences, keeping in view the global requirements of health care, with national needs as the focal point within a world class research environment. The Doctor of Philosophy (Ph.D) Program in Health Sciences and Inter-disciplinary area (where in one of the disciplines shall be Health Sciences) is proposed with an objective of promoting the cause of quality research in thrust or priority areas. The UGC expects from Deemed Universities’ activities related to research, development, extension and consultation all being aimed at attaining academic excellence. The research programme allows the candidate to explore a specific area of the chosen subject in depth and research scholars are expected to make an independent contribution to the existing knowledge in their field of research. The infrastructure facilities and human resources available at the KLE University Health Institutions and the pockets of research talents identified in other KLES institutions shall be effectively utilized for promoting quality research in health sciences and inter-disciplinary areas. The programme combines a core curriculum, advanced coursework and original research and is designed to give the candidate a broad inter-disciplinary base. The research scholars have excellent opportunities for one on one interaction with the faculty, benefits of a small class and excellent research training to broaden their research experience.

To facilitate interdisciplinary research, a separate Board of Studies for Inter-disciplinary Studies has been constituted. The monitoring of the research activity will be done by the Committee comprising of the Dean-Faculty of Medicine, Director of Academic Affairs and Chairman. Board of Studies for Inter-disciplinary Studies.

[II] AIMS & OBJECTIVES OF THE Ph.D. PROGRAMME

- To gain expertise and knowledge in a specialized field of research.
- Design, implement & report a research project.

[III] DISCIPLINES

Admission to Ph.D. program will be made under the following faculties, covering a wide spectrum of disciplines. The candidates shall also be permitted to register for interdisciplinary health programs.
[A] FACULTY OF MEDICINE:

(a) Pre-Clinical
   (i) Anatomy
   (ii) Physiology
   (iii) Biochemistry

(b) Para-Clinical
   (i) Pharmacology
   (ii) Pathology
   (iii) Microbiology
   (iv) Forensic Medicine
   (v) Community Medicine

(c) Clinical
   (1) Medicine and Allied Subjects
       (i) Medicine
       (ii) Paediatrics
       (iii) Pulmonary Medicine
       (iv) Dermatology
       (v) Psychiatry

   (2) Surgery and Allied Subjects
       (i) Surgery
       (ii) Orthopaedics
       (iii) ENT & Head & Neck (HNS)
       (iv) Ophthalmology

   (3) Obstetrics & Gynaecology, Anaesthesiology and Radiology
       (i) Obstetrics & Gynaecology
       (ii) Anaesthesiology
       (iii) Radiology
(4) **Superspecialities:**

(i) Cardiovascular and Thoracic Surgery

(ii) Urology

(iii) Plastic Surgery

(iv) Cardiology

(v) Neurology

(vi) Neurosurgery

(vii) Paediatric Surgery

(d) **Other Disciplines of Health Sciences**

(i) Hospital Administration

(ii) Public Health

(iii) Medical Education

(iv) Nursing

(v) Physiotherapy

[B] **FACULTY OF DENTISTRY**

(a) **Pre-Clinical**

(i) Dental Anatomy & Oral Histology

(ii) Dental Material

(b) **Clinical**

(i) Prosthodontics

(ii) Orthodontics

(iii) Periodontics

(iv) Oral Surgery

(v) Pedodontics

(vi) Oral Diagnosis and Radiology

(vii) Conservative Dentistry

(viii) Community Dentistry

(ix) Oral Pathology and Microbiology

[C] **FACULTY OF PHARMACEUTICAL SCIENCES**
All subjects of Pharmaceutical Sciences

[D]  
FACULTY OF AYURVEDA  
All subjects of Ayurvedic Sciences

[E]  
INTER-DISCIPLINARY AREAS (Involving Health sciences)  
which also includes  
(i)  
Biostatistics  
(ii)  
Music

[F]  
BASIC SCIENCE RESEARCH LABORATORY

PRE-Ph.D. EXAMINATION  
(Based on UGC Guidelines, 2009)

i)  
The candidates admitted to Ph.D. Programme shall have to appear for Pre-Ph.D. examination.

ii)  
Pre-Ph.D. examination shall be conducted after six months but within one year from the date of registration.

iii)  
The Controller of Examinations concerned shall conduct the Pre-Ph.D. examination. The registration of such candidates, who do not pass the Pre-Ph.D. examination in five consecutive attempts from the date of registration, shall be cancelled.

iv)  
The Pre-Ph.D. examination for all the faculties shall consist of examination in three theory papers. The first two papers of three hours duration with 100 marks each and biostatistics paper is of two hours with 50 marks. The common paper (Paper I) shall be on the topics covered in the syllabus for orientation programme as described under course work of 400 hours. The paper two shall be on the topics related to the research discipline of the candidate. The biostatistics paper (Paper III) on the topics covered in the syllabus for the orientation programme of 75 hours as described. The syllabi for the papers shall be notified by the Dean and Director Academic Affairs with the approval of Vice-Chancellor. The Examiner appointed by Vice-Chancellor shall set the common paper and
special paper and biostatistics paper. The two Examiners appointed by Vice-Chancellor shall evaluate the papers and the average of the two will be taken into consideration.

v) The minimum pass marks of paper I & paper II shall of 50 % and Biostatistics 40%. If the candidate fails in a paper he or she has to appear only in that paper.

**ORIENTATION PROGRAMME**

**Details of the syllabus to be covered in 475 hours by the Ph.D. Research Scholars**

01. **Introduction to Ph. D Programme: 10 hours**

Introduction to the course, course objectives, Open House Discussion, timely submission of Half yearly Reports & Synopsis submission, articles submission. National Knowledge Commission. National Assessment and Accreditation Council (NAAC) University Grant Commission (UGC)

02. **Historical Perspectives: 25 hours**

Historical narration about conduct of research on human subject, Biblical times, research on vulnerable population, tackling of ethical issues in the past century. Ethical code, Nuremberg code, Helsinki declaration, Belmont principles in conduct of research in human subject.

**Ethical Issues in Research: 50 hours**

Background, general principles on ethical considerations involving human participants, general ethical issues, Ethical Review Committee – need, relevance and working rules & regulations as applicable in India. Ethical Review Procedures, IRB. Principles for clinical evaluation of drugs/devices/diagnostics/vaccines/herbal remedies. Informed Consent Process – Preparing an informed consent for a research project.

03. **Good clinical practices: 5 hours**


04. **Good Laboratory Practices: 5 hours**
SOP in lab practice, Bio safety, disposal, ethical practices, standardization of techniques and instruments.

05. An Approach to Research in Health Science 50 hours
Research protocol development

Research Methodology – Defining research questions/Hypothesis, Study designs - cross sectional study, case control study and randomized clinical trials
Clinical Trials – Introduction, composition, procedures & records, Informed consent, responsibility & rules applicable to investigators and sponsors, ethical issues.

Grant Writing – Introduction, specific aims, review of literature, measures, methodology, study plan and statistical analysis. Protection of human participants, proposed budget and time line for the proposal. Pre-Clinical Research / Translational Research

06. Manuscript Writing : 25 hours
Writing a scientific manuscript, structured writing and language editing, writing respondents & presentation, bibliography, impact factor, plagiarism, referencing & citations, GCP and safety. Hands on workshop on writing abstracts and manuscripts.

07. Critical Appraisal of Article Published in Scientific Journal: 10 hours
What is critical appraisal and why critical appraisal, presents scenario of scientific publications, methodology of critical appraisal, format for critical appraisal

08. Evidence Based Medicine: 15 hours
Introduction to Evidence Based Medicine, Lecture followed by Group activity on EBM, critical appraisal of literature for Evidence Based Medicine

09. Thesis Writing: 10 hours
Introduction to thesis writing, format for thesis writing, seminar presentations, preparation for Viva-Voce & communication skills.

10. Health Insurance: 10 hours
Types of health insurance, scope, limitation and Utility. Introduction, history and evaluation of health insurance. Classification of health insurance schemes. Public Sector health insurance schemes for profit, like LIC, GIC and its subsidiaries. Public Sector health insurance schemes for non-profit like CGHS, ESI and for disadvantaged groups. Private Sector (Non profit) - Community health insurance schemes. Future challenges of health insurance.

11. Bio diversity: 10 hours
Medicinal plants, application of biotechnology in herbal drug development.
- DNA fingerprinting
- Molecular biological techniques
- Genetic coding

12. Alternative systems of medicine: 30 hours
Various systems of medicines: Sidha, Unani, Homeopathy, Naturopathy, Polanty theory, Reiki, Magneto therapy, Chinese Acupuncture, Ayurveda.

13. Health care delivery systems in India: 50 hours
National Population Policy.
National Health Policy.
National Rural Health Mission (NRHM program).
RCH program.
Current Health Problems.
Environment & health.
Chronic non communicable diseases – Challenges for India.
Biomedical waste.
Emerging and re-emerging infectious diseases in the world and in India.
Population explosion causes and its impact.
Health as a Human Right, Patient Counseling

14. Miscellaneous: 20 hours
Nobel Laureates. Indian scientists of repute.

15. Library Work: 75 hours
Total 400 hours.
Introduction to Bio-statistics, translating research problem into hypothesis testing, Type I & Type II errors in statistics, checking errors in data and correcting them. Types of variables and types of data measurements scales, Data Collection methods, presentation & organization of data – Tabular / Graphical Form. Sampling Designs, Descriptive Statistics - Measures of central tendency & measures of dispersion, correlation Analysis, Regression Analysis, Probability Theory - Binominal distribution, Poisson distribution, normal distribution, concept of testing of hypothesis. Test of Significance- Parametric tests-Z test, T test, ANOVA and Non Parametric tests- Chi- Square test, Wilcoxon Rank test, Kruskal Wallis test. Sample size calculation for different study designs, devising conclusion from data analysis.Use of computers and data cleaning and management learning and vital statistics.

SCHEME OF PRE-Ph.D. Examination

Paper - I : All topics covered in the syllabus for orientation programme as described under course work of 400 hours.

Paper - II : The topics related to the research of the candidate.

Paper – III: Biostatistics: - The topic covered in the syllabus for orientation programme as described under course work of 75 hours.

PATTERN OF QUESTION PAPERS

Paper I & II shall be of 3 hours duration with 100 marks each. Both papers shall contain two long questions of 20 marks each and six short questions of 10 marks each. The candidate has to attempt all the questions.

The candidate has to score minimum of 50 marks in each paper for being declared as pass.

Paper-III shall be of 2 hours duration of 50 marks. The paper shall contain two long questions of 10 marks each and five short questions of 6 marks each.

The candidate has to score minimum of 40% marks in aggregate (university Exam + I.A).