UKA TARSADIA UNIVERSITY

Syllabus of Pre Ph.D. course work (Semester –I)

Subject Name: Research Methodology (Feb- June 2013, Revised)

The objective of the course is to introduce the basic methods of conducting research, explore ideas in formulating research objectives and hypotheses and sample framework for taking up research studies in a structured manner. It enable researchers in developing the most appropriate methodology for their research studies and make them familiar with the art of using different research methods and techniques. Also it is intended to facilitate for the development of an insight into different statistical tools for data analysis, interpretation and presentation of reports in different areas of research.

1. **Introduction to Research:**
   Meaning of research/ definition of research, importance of research, role of research, aims & objectives, research methods versus methodology, classification of research, research process (various steps in scientific research), criteria for good research, qualities of researcher.

2. **Formulating research problem:**
   **A. Review of Research Literature:**
   Purpose and use of literature review, locating relevant information, use of library & electronic databases, preparation & presentation of literature review, research article reviews, theoretical models and framework, identification of gaps in research.
   
   **B. Defining research problem**
   What is research problem? selecting the problem, necessity of defining the problem, techniques involved in defining a problem.
   
   **C. Identifying variables**
   The definition of a variable, the difference between a concept and a variable, concepts, indicators and variable, types of variable, types of measurement scale
   
   **D. Constructing hypothesis**
   Definition of hypothesis, functions of a hypothesis, characteristics of a hypothesis, types of hypothesis, errors in testing a hypothesis

3. **Research Design:**
   **A. The research design**
   Definition, function
   
   **B. Types of study design**
   Formal, informal

4. **Sampling:**
   Concept of sampling, sampling terminology, principles of sampling, factors affecting the inferences drawn from a sample, aims in selecting a sample, types of sampling, calculation of sample size

5. **Writing a research proposal:**
   Research proposal/protocol, contents of a research proposal, work schedule

6. **Data collection and data processing:**
   Methods of data collection, ethical issues in data collection, data processing, statistical analysis

7. **Research Publication & Presentation**
B. Presentation (especially for oral presentation): Importance, types different skills, contained, format of model, introduction, Poster, Gestures, eye contact, facial, expressions, stage, fright, volume—pitch, speed, pause & language, Visual aids & seating, Questionnaire.

C. Quality indices of research publication: Impact factor, immediacy factor, H-index and other citation indices.

Sources for procurement research grants: International agencies, Government and private bodies.

Ethical issues in research: Areas of scientific dishonesty; ethical issues related to copyright; plagiarism, Scientific Misconduct, Animal subjects.

Intellectual Property and Patent
Introduction to Intellectual Property Rights (IPR), its importance, IPR vs regulatory issues, integration of IPRs in research work, Definition of patent, Need for patenting, Types of Patents.

Text Books:
7. IPR Handbook for Pharma Students and Researcher, Parikshit Bansal, Pharma Book Syndicate.

Reference Books: