

## **Draft Guidelines for Ph.D. Course Work**

After having cleared the Ph.D. entrance examination conducted by the university and allotment of the supervisor and the research centre, a Ph.D. scholar shall be required to enroll for the course work at the research centre. The course work shall be for one semester commencing from the date of this enrolment and a scholar shall be expected to work during the semester.

The course work shall be treated as Pre-Ph.D. preparation. The regular course of study for the course work shall be conducted on self-sufficiency basis by the concerned research center.

No division will be awarded in Ph.D. course work.

Course work shall include two papers of 100 marks each.

**Paper 1: research methodologies;** which shall include quantitative methods and computer applications.

**Paper 2: review of relevant literature and scientific presentation;** which shall include an intensive review of available literature/research techniques relating to the proposed research area of the Ph.D. scholar. Each research center is free to design curriculum for paper-2 based on the requirements of Ph.D. scholar.

### **Condition of passing:**

A Ph.D. scholar shall be required to secure at least 50% marks in paper 1 and paper 2 to qualify the course work. A scholar not qualifying the course work shall be required to re-appear in the examination again, failing which he/she shall not be allowed to pursue the Ph.D. work.

### **EXAMINATION SCHEME FOR THE COURSE WORK**

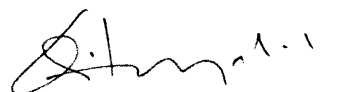
At the end of the semester, there shall be a theory examination of 100 marks for paper-1 to be as per the prescribed syllabus and examination scheme on a notified date at a notified examination centre.

At the end of the semester, there shall be an examination for paper-2 consisting of scientific presentation of 50 marks and literature survey report of 50 marks, to be conducted by the research centre within 15 days of the date of conduct of examination of paper-1.

The research center shall submit marks (out of 100) to the university for declaration of result of the course work.

### **Paper1: research Methodologies (100 marks)**

- a. The question paper will be of 3 hours duration for a total of 100 marks.
- b. There will be five questions of twenty marks each. All the five questions shall be compulsory.
- c. The pattern of the question paper shall be as below:
  - Q. 1. Objective questions of multiple choice type; 20 questions to be answered out of 25 (20 x 1 marks)
  - Q. 2. Short answers type questions (any five out of seven) (5 x 4 marks).
  - Q. 3. Long answer type question (any two out of four) (2 x 10 marks).
  - Q. 4. Short notes (any two out of four) (2 x 10 marks)
  - Q. 5. Preparation of any suitable research proposal (detailed scheme) (20 marks.)



## **Paper II: Review of Relevant Literature and Scientific Presentation**

### **Scientific presentation (duration 1 hours, 50 marks):**

One seminar presentation using power point (which includes text, graphs, picture, tables, reference etc.); question & answer session etc.

### **Literature survey report (50 marks):**

Literature survey of the previous works and search for articles in the library. Review of an article in the relevant field and preparation of a short report.

### **Proposed syllabus for paper 1 (research Methodology)**

**Overview of research:** research and its types, identifying and defining research problem and introduction to different research designs. Essential constituents of literature review. Basic principles of experimental design, completely randomized, randomized block, Latin square, factorial, response surfaces.

**Methods of data collection:** primary data and secondary data, methods of primary data collection, classification of secondary data, designing questionnaires and schedules.

**Sampling methods:** probability sampling; simple random sampling, systematic sampling, stratified sampling, cluster sampling and multistage sampling. Non-probability sampling; convenience sampling, judgement sampling, quota sampling. Sampling distribution.

**Processing and analysis of data:** statistical measures and their significance; central tendencies, variation, skewness, kurtosis, time series analysis, correlation and regression. Testing of hypotheses; parametric tests (t, z and f), chi square, ANOVA, and non-parametric tests.

**Multivariate analysis:** multiple regression, factor analysis, discriminant analysis, cluster analysis, multidimensional scaling.

**Reliability and validity:** test-retest reliability, alternative-form reliability, internal-comparison reliability and scorer reliability. Content validity, criterion-related validity, and construct validity.

### **Essential of report writing.**

**Use of internet in research works:** use of internet networks in research activities in searching material, paper downloading, submission of papers online, use of different databases, relevant websites for journals.

**Introduction to patent laws:** patent laws, Indian patent act 1970, its amendments, criteria for granting patents and filling a Indian patent, PCT, patent infringement. Introduction to patent search.

