UNIVERSITY OF MUMBAI

Pre-Ph.D. Programme for Students for Ph.D. in Education, University of Mumbai

Introduction

The teaching programme for research students pursuing their doctoral degree in Education, as per UGC guidelines, is for a period of 6 months. The programme consists of three courses which have been developed with the objective of providing the research students the maximum guidance in conceptualization, theorization, research designing, data collection and analysis of their particular topic of doctoral research.

It is proposed to commence the teaching programme from December and complete the same by the May of the next year. This would entail instructional time from December to April, followed by a one month period for students to complete and submit their assignments, in the respective courses.

Instructional time for the teaching programme would consist of 48 hours per course. This would be conducted in the form of two hour interactive sessions three days a week for two hours.

Every working Saturday will be used up by one of the course programmes for its seminar sessions, such that by end of April, all three courses would have been conducted in 24 contact sessions of two hours each (Total 48 Hours).

Attendance for the entire programme is compulsory and as per University regulations, it is mandatory that students maintain a 75% attendance during the entire course.

On completion of the teaching programme, the concerned Ph.D. centre will announce the names of those candidates who have successfully finished the programme, as well as the grades they have obtained in all the three courses.

Those students, who have not completed the research programme satisfactorily, as per the requirements of the department, will be asked to repeat the course in the subsequent year and only after they have successfully completed the course program, will they be permitted to proceed with their doctoral research work.

It will be endeavoured to use the seminar format to teach all three courses. This would involve the students, having in-advance in their possession, the reading material for discussion and deliberation during each input session.

It will be the duty of the course co-ordinator to ensure that all the resource persons being invited to take input sessions will make available, at least a week in advance, the reading material that he/she will utilize during the input session.

Participants will be provided with a time-table, at the beginning of the programme, stating the different courses/resource persons/topics/timings etc.

The programme will be made up of three courses in research methodology. These include:

1. Research Methodology in Education
2. Statistical Techniques and Computer Applications in Educational Research
3. Qualitative and Mixed Methods Research

Pre-Ph.D. Course Content

COURSE 1: RESEARCH METHODOLOGY IN EDUCATION

Objectives: This course is designed to equip students with the requisite knowledge of research methodology in education including research methods, variables, hypotheses, sampling, tools and techniques.

Module 1: Educational Research

(a) Meaning and steps of educational research.
(b) Aims of research as a scientific activity: Problem-solving, Theory Building and Prediction.
(c) Approaches to educational research: Quantitative, Qualitative and Mixed Methods.
(d) Components of a research proposal.
(e) Skills required for conducting research

Module 2: Variables and Hypotheses

(a) Variables: Meaning and Types
(b) Research Questions
(c) Hypotheses: Concept, Sources and Types.

Module 3: Research Methods

(a) Descriptive Research: Survey, Causal-Comparative and Correlational
(b) Historical Research: Meaning, scope and steps of historical research, types of historical sources, external and internal criticism of historical sources.
(c) Experimental Research: Pre-Experimental, Quasi-Experimental and True-Experimental Designs, Factorial Design, internal and external experimental validity and controlling extraneous and intervening variables.

Module 4: Sampling

(a) Concept of universe and sample
(b) Determining sample size
(c) Techniques of sampling (Probability and Non-Probability Sampling)

Module 5: Tools and Techniques of Data Collection

(a) Tools of Data Collection

- Rating Scale
- Attitude Scale
- Opinionnaire
- Questionnaire
- Aptitude Test
- Check List
- Inventory
- Semantic Differential Scale
- Achievement Tests

(b) Techniques of Data Collection

- Observation
- Interview
- Projective.

(c) Tool Development

- Validity (Meaning, types, indices and factors affecting validity)
- Reliability (Meaning, types, indices and factors affecting reliability)
- Item Analysis (Discrimination Index, Difficulty Index)
- Standardization of a tool.

Module 6: Research Reporting

(a) Format, Style and Mechanics of Report Writing with Reference to (i) Thesis and (ii) Paper.
(b) Bibliography.
(c) Evaluation of Research Report.

EVALUATION: This course carries 6 credits and the breakup is as follows:

    a. Assignment 1 (6000 words) written and presentation – 2 credits
    b. Assignment 2 (6000 words) written and presentation – 2 credits
       (Both assignments will be under the supervision of the course teacher)
    c. Essay (6000 words) to be submitted at the end of the course – 2 credits

(The essay will be based on a theme/issue specific to the students' doctoral work.)

Grades will be assigned for all the above credits.

COURSE 2: STATISTICAL TECHNIQUES AND COMPUTER APPLICATIONS IN EDUCATIONAL RESEARCH

Objectives: This course is designed to make students aware of various statistical techniques for descriptive data analysis and for testing of hypotheses including parametric and non-parametric techniques. It also includes the use of computers in conceptual and empirical literature review, drawing of graphs and data analysis.

Module 1: Types of Distribution

    (a) Discrete and Continuous distribution of data.
    (b) Normal Probability Distribution (Areas under the normal curve, Applications)
    (c) Types of Measurement Scale (Nominal, Ordinal, Interval and Ratio)

Module 2: Hypothesis Testing

    (a) Testing of Hypotheses
    (b) Levels of Significance
    (c) Type I and Type II Errors.
    (d) Power of a test.

Module 3: Descriptive Data Analysis

    (a) Measures of central tendency.
    (b) Variability
    (c) Measures of Divergence from Normality (Skewness, Kurtosis)
    (d) Estimation of Population Parameters of Mean and SD.
    (e) Graphical Presentation of Data.

Module 4: Bi-Variate Techniques of Data Analysis

    (a) Conditions to be satisfied for using parametric techniques
    (b) Pearson's Coefficient of Correlation

(c) T-test for comparison of Mean Scores.
(d) Z-test for comparison of r's.
(e) ANOVA
(f) Biserial and Point-Biserial r.

Module 5: Non-Parametric Techniques

(a) Spearmans' Rho
(b) Chi-square (Equal Probability and Normal Probability Hypotheses)
(c) Contingency Coefficient and Chi-square
(d) Tetrachoric and Phi Coefficients
(e) Median Test
(f) Sign Test
(g) Mann-Whitney U-Test

Module 6: Multivariate Techniques of Data Analysis

(a) Partial and Multiple Correlation, Part Correlation
(b) Multiple Regressions
(c) Two-way ANOVA
(d) MANOVA
(e) ANCOVA
(f) Path Analysis
(g) Factor Analysis
(h) Canonical Correlation
(i) Discriminant Analysis
(j) Hotelling's t-test

Module 7: Use of Computers in Research

(a) Literature Review
(b) Graphs
(c) Data Analysis using MS-Excel

EVALUATION: This course carries 6 credits and the breakup is as follows:

a. Assignment 1 (6000 words) written and presentation – 2 credits
b. Assignment 2 (6000 words) written and presentation – 2 credits
   (Both assignments will be under the supervision of the course teacher)
c. Essay (6000 words) to be submitted at the end of the course – 2 credits

(The essay will be based on a theme/issue specific to the students' doctoral work.)

Grades will be assigned for all the above credits.

COURSE 3: QUALITATIVE AND MIXED METHODS RESEARCH

Objectives: This course is designed to familiarize students with various aspects of qualitative and mixed methods research methodology.

Module 1: Qualitative Research Methods

Salient features of the following methods of qualitative research:

  (a) Grounded Theory Design
  (b) Narrative Research
  (c) Case Study
  (d) Ethnography

Module 2: Conducting Qualitative Research

  (a) Sampling techniques in qualitative research
  (b) Data Collection in qualitative research
  (c) Data analysis and report writing in qualitative research.

Module 3: Mixed Methods Designs

  (a) Types
  (b) Data Collection
  (c) Analysis and Report Writing

EVALUATION: This course carries 6 credits and the breakup is as follows:

  a. Assignment 1 (6000 words) written and presentation – 2 credits
  b. Assignment 2 (6000 words) written and presentation – 2 credits
      (Both assignments will be under the supervision of the course teacher)
  c. Essay (6000 words) to be submitted at the end of the course – 2 credits

(The essay will be based on a theme/issue specific to the students' doctoral work.)

Grades will be assigned for all the above credits.

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