

## **SYLLABUS OF COURSE WORK FOR Ph.D. PROGRAMME**

### **COURSE: ADVANCED RESEARCH METHODOLOGY IN SPEECH AND HEARING**

**Duration of the Course: 32 hours**

**Maximum Marks: 100 Marks**  
**(50 marks for Tutorials, Seminars and Assignments and**  
**50 marks for written test)**

**OBJECTIVES:** After the completion of this programme (16 weeks), the candidate should be able to:

- 1) Describe the nature, purpose and scope of different types of research in Speech and Hearing
- 2) Select and describe appropriate methods for different research studies
- 3) Identify research gaps and needs, and select a problem for research
- 4) Define variables and formulate research questions/objectives/hypotheses
- 5) Explain a sampling design suitable for a given research study
- 6) Incorporate ethical standards in research
- 7) Prepare Ph.D./project proposal, abstract, synopsis, research report, trend report, evaluation report etc.,
- 8) Describe the steps in the construction of different tools; establish validity and reliability
- 9) Test hypotheses using appropriate statistical technique
- 10) Use different softwares for analysis of data
- 11) Discuss findings in relation to objectives, hypotheses and the findings of other studies, draw implications

#### **Unit 1: Foundation for Research in the area of Speech and Hearing**

- (a) Relevance of the research; characteristics and values/ethical issues of a doctoral study in the area of Speech and Hearing
- (b) Factors to be considered while planning feasible research studies in the area of Speech and Hearing
- (c) Review of literature; Resources (data base, e-resources), Approach, Critical evaluation of the earlier research work; identification of research gaps, needs; selection and formulation of research problem; selecting and defining variable formulating hypotheses /issues/objectives/research question
- (d) Identification and categorization of variables such as independent, dependent, extraneous etc., in 10 articles; Critical evaluation regarding the selection of these variables in relation to the objectives of studies.

## **Unit 2: Applications of Sampling and Methods of Data Collection in Speech and Hearing research:**

- (a) Sampling in quantitative, qualitative and mixed research; Random sampling – simple, systematic, stratified, cluster and multi stage; Non-random sampling – conveniences purposive, quota and snow-ball.
- (b) Methods of data collection – identifying a tool using reliability and validity information; construction and use of tests, inventories, scales, check list and questionnaire; relevance of and guidelines for conducting interview, and observation – focus group discussion, time sampling, field notes, role of researcher in observation; collection of secondary (existing) data.
- (c) Categorization and critical evaluation of different sampling techniques and data collection methods used in at least 10 articles.

## **Unit 3: Methods of Research in the areas of Speech and Hearing**

- (a) Research methods: Terms, concepts and their application in area of Speech and Hearing
  - i. *Quantitative Methods:*

Experimental Method/Research – Manipulation / content of variables in Speech and Hearing; Research strategies – Experimental (bivalent, multivalent and parametric), Descriptive (comparative, developmental, correlational and survey). Research designs- within group, between group and mixed types.

- Non-experimental/descriptive method / research survey, causal-comparative and correlational; predictive and exploratory, cross sectional, longitudinal (trend and panel studies).

- ii. *Qualitative Methods:*

- Case study, phenomenology, ethnography, grounded theory – characteristics, types, data collection, analysis and report writing.
  - Historical research – primary and secondary sources; external and internal criticism of the sources.
  - Mixed research – principles, strengths and weaknesses.
- (b) Categorize and critical evaluate different research strategies, research designs in at least 10 articles

#### **Unit 4: Applications of Statistics in speech and hearing research**

- (a) Types of data analysis and characteristics of appropriate data analyses,
- (b) Applications of Descriptive Analyses
- (c) Applications of Statistical Analyses:
  - Selection of appropriate statistics based on various parameters such as, research strategies and design, sample size, type of data, objectives etc.,
  - For analyzing the differences in the data
  - For analyzing the relationships among the variables
- (d) Analysis in qualitative and mixed research – path analysis, field notes, content analysis, error analysis, mnemonics, analysis of visual and audio data, coding, constructing diagrams.
- (e) Applications of tests of reliability and validity of the data
- (f) Statistical Analyses on different soft wares (Examples: SPSS package, Microsoft Excel, Systat, Stata, etc).

#### **Unit 5: Scientific report writing in area of Speech and Hearing**

- (a) Components of research articles and theses: overview
  - Introduction section
  - Review of literature section
  - Method section
  - Results section
  - Discussion section
- (b) Orientation towards standardized writing format and style such as APA
- (c) Differences in the styles of writing: abstracts/executive summary, research paper / article, synopsis, doctoral thesis etc.
- (d) Vocabulary/syntax considerations while writing scientific reports
- (e) Representation of the data in tabular and graphical form

#### **Teaching methods to be used**

Lecture-cum-discussion, group discussion, seminar presentations, tutorials, research exercises;



## References

- Andy Field (2005). *Discovering Statistics Using SPSS (Introducing Statistical Methods)*. Sage publications: London.
- Bryman, A. (2006). *Mixed methods*. Sage publications.
- Creswell, J.W. (1994). *Research design (Qualitative and quantitative approaches)*. Sage publications.
- deVans, D. (2006). *Research design*. Sage Publications.
- Devarajan, G. (2002). *How to improve quality in research*. ESS publications
- Federer, W. T. (1955). *Experimental design: theory and applications*. Oxford & IBH.
- Festinger, K. & Katz, D. (1962) *Research methods in behavioral sciences*. Amerind publishers: New Delhi.
- Hegde, M. N. (2006). *Clinical Research in Communicative Disorders [2nd Edition] Principles and strategies*. Singular Publishing: San Diego.
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- Hulley, S.B., Cummings, S.R., Browne, W.S., Grady, D.G., & Newman, T.B. (2007). *Design in clinical research*. William & Wilkins: Baltimore
- Irwin, D. L., Pannbacker, M., & Lass, N.J. (2008). *Clinical research methods in speech-language pathology and audiology*. Plural publishers: Abingdon.
- Maxwell, D. L., & Satake, E. (1997). *Research and Statistical Methods in communicative disorders*. Baltimore: Williams and Wilkins: Baltimore
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- Portney, L.G. and Walkins, M. P. (1993). *Foundations of Clinical Research*. Connection: Appleton and Lange. ISBN 0-8385-1065-5
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- Woods, A. Fletcher, P and Hughes, a (1986). *Statistics in Language studies*. Cambridge: University Press ISBN 0-521-253268.