Subject Code : ECNTC

ELECTIVE COURSE III – RESEARCH METHODOLOGY

Scope :

The course is meant for students who are already knowledgeable in the various instrumental methods of analysis and thus can generate data. The course aims to train such students in the statistical analysis and presentation of the data with the interpretation based on the already existing literature in a manner appropriate in the report / thesis / dissertation and or for publications in appropriate research journals. The aim of the paper thus is to lay a strong foundation for the student for thesis writing, editing, analysis and interpretation of the generated data with hands on experience with model sums.

1. Research : selection of problem – stages in the execution of research: choosing a topic to publication – Preparation of manuscript – report writing – format of journals – proof reading – sources of information : journals, reviews, books, monographs etc-bibliography.

2. Journals : standard of research journals – paid and referred journals – impact factor citation index – choice of journals for publication. Information retrieval: access to archives and databases, search engines: google, pubmed etc-national informatics centre network services. Online data base library.

3. Measures of dispersion : Universe and population – delimiting population – sampling methods: random sampling, stratified random sampling – types of variables: qualitative and quantitative variables – continuous and discontinuous variable – scaling method – mean – standard deviation – standard error – coefficient of variation: elucidation with model sums.

4. Comparison of means; chi square test, student t test, ANOVA "portioning of variation) F- test – model sums on one way ANOVA with interpretation of data – introduction to MANIVA – Statistical tables and their use – significance test and fixing levels of significance – use of statistical software like COSTAT and STATISTICA. Brief Introduction to pie chart and histograms. Use of LCD.

5. Bivariate relationships: Uses of Correlation and regression. Correlation and coefficient - components of regression equation – ANOVA in regression. Confidence intervals of regression lines. Fitting simple regression lines: model sums, calculations of equation and fitting of regression line, estimated and calculated Y.

Reference:

1. Davis, G.B. and C.A. Parkar 1997. Writing the doctoral dissertation. Barrons Educational series, 2nd edition, Pp 160. ISBN : 0812098005.
2. Duncary, P.2003. Authoring a Ph.D. thesis: how to plan, draft, wirite and finish a doctoral dissertation. Plagrave Macmillan, Pp256. ISBN 1403905843.
3. Saxena, S.2001, MS office, Vikas Publishing House Pvt.Ltd. New Delhi 110014.
4. Snedecor, G.W. and W.G. Cochran, 1978. Statistical methods. Oxford and IBH Publishing Co Pvt. Ltd.
5. Sokal, R.R. and F.J. Rohlf, 1981. Biometry. W.H.Freeman, New York.
6. Zar. J.H. 1996. Biostatistical analysis. Prentice Hall, Uppar Saddle River, New Jersey, USA