



# SANTOSH

Deemed to be University

(Established u/s 3 of the UGC Act. 1956)



OFFICE OF DEAN RESEARCH

## **Core Paper-I : Research Methodology, Biostatistics and Computer Basics**

### **Unit-I Research problem design**

Research problem and design: Meaning and objective of research, motivation in research, types of research, significance of research, research and scientific methodology, importance and criteria of good research, Formation of research problem, sources of research problem, meaning of research design, features of good design, important concepts of relating research design, different basic designs.

### **Unit-II Literature Searching and Report Writing**

a) Literature Searching: On-line searching, different Database, Searching research articles, Citation Index, Impact Factor, H-index,

b) Writing scientific report: Structure and components of research report, revision and refining writing project proposal, Paper writing for International Journals, paper submission procedure, Conference oral and poster presentation, preparation of slides, pictures, graphs and citation styles. c) Thesis writing: parts of thesis, the preliminary pages and the introduction, the literature review, Methodology, data analysis, and conclusions.

### **Unit III: Statistical analysis, Computer Basics and Computational Tool- SPSS Theory and Practical**

Introduction of Statistics, Data, Data Collection, Sampling techniques

Measures of Central Tendency: Mean Median and Mode (Merits and Demerits).

Measures of Dispersion: Range, Inter-quartile, Quartile Deviation, Mean Deviation, Standard Deviation, Skewness & Kurtosis,

Graphical Presentation

Statistical Hypothesis and Test of significance, Procedure for testing of hypothesis, determining levels of significance & P-value, Type I and II errors

Test for relationship: Chi square test and its application, Correlation, Regression

Test for Comparison: Z-test, t-test, ANOVA (one-way, two-way, repeated measure)



Non-parametric statistical techniques: Mann Whitney test, Wilcoxon test, kruskal Wallis & Friedman test

Introduction to Computer and its generations, hardware, software-system software and application software, computer networks and internet, Computer hardware, motherboard, power supply and drive bays, CPU, Memory Cooling components, Operating systems, application software-word processing concept, spread sheet concept, database concept, presentation graphic concepts, graphics and multimedia concepts

Computational Tool- SPSS

Data files: Basic descriptive statistics: descriptive, frequencies, explore, crosstabs; Graphs: histogram, error bar, box-plot, bar chart, scatter etc; Reading data into SPSS data files from outer sources: excel files & text files; Advanced statistical procedures such as: t-test, Chi-square, regression, correlation etc.

MS-Excel: Data entry, prepare master chart, formula use in data,

MS-PowerPoint: Creating slides, applying transitions and sound effects, setting up slide shows, Animation.

#### **Unit IV: Introduction to Intellectual Property Right, Ethics in medical research & Plagiarism (IPR)**

Research Ecosystem, Incubation centre and start-ups, Origin and Genesis of IPR, The Ways and Means of Creation of IPR, Sources of IPR-Custom, Treaties, General Principles of Law, Patents - Basic aspects, Trade Marks - Basic principles, Copy Right - Basic Issues and Industrial Designs and Geographical Indications- Basic aspects

Introduction to Bioethics & History of Principles of Ethics ,Equality, Equity and Justice, Human dignity & Human rights, Autonomy and Individual Responsibility, Informed consent, Privacy and confidentiality, Research ethics and Scientific Misconduct, Public Health Bioethics, ethical review procedures, Institutional ethical committee, its organization and functions, General principles on ethical considerations involving human subjects as per ICMR Guidelines, Specific principles for clinical evaluation of drugs/devices/diagnosis/vaccines/herbal remedies as per CDSCO Guidelines, specific principles in human genetic research, Ethical guidelines for experimental animals for specific research.



Plagiarism: definitions and types of Plagiarism, causes of Plagiarism, importance of Plagiarism, ways to avoid Plagiarism, common knowledge, paraphrasing and citations and references, consequences of Plagiarism, Role of educator, Plagiarism checker software, cases of plagiary

CORE Paper II :Advanced Specialization in the subject area (8 credits), 60 hours where every research scholar is required to do a course in Recent Advances in his/her research area under the concerned supervisor, the syllabus for the same is provided by concerned department after due approval by RAC

**Paper III:**

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**Unit I: Introduction to Intellectual Property Right**

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