Name of the Programme	**Bachelor of Physiotherapy (BPT)**
Name of the Course	**Research Methodology**
Course Code	**BPT027**
Course Description	**Core Theory**
Semester	**Semester IV**
Credit per week	**2 credits**
Hours per Semester	**40 hours**

Course Outcomes	
CO 1	enumerate the steps in Physiotherapy research process.
CO 2	describe the importance & use of biostatistics for research work.
CO 3	describe the PICO format, methods of reviewing literature, formulating hypothesis, collecting data, writing research proposal and research ethics
CO 4	describe study designs, define sampling techniques, discuss the concept of probability and probability distribution, application of inferential statistics and descriptive analysis
CO 5	demonstrate skill of preparing a research proposal, data tabulation, graphical representation of data and research report

Unit	**Topics**	**No. of Hrs.**
1	**RESEARCH IN PHYSIOTHERAPY** a. Introduction b. Research for Physiotherapist: Why? How? When? c. Research – Definition, concept, purpose, approaches d. Internet sites for Physiotherapists	**05**
2	**RESEARCH FUNDAMENTALS** a. Define measurement b. Measurement framework c. Scales of measurement d. Pilot Study e. Types of variables f. Reliability &Validity g. Drawing Tables, Graphs, Master chart	**05**
3	**WRITING A RESEARCH PROPOSAL** a. Defining problem b. Review of Literature c. Formulating a question, Operational Definition d. Inclusion & Exclusion criteria e. Methodology- Forming Groups Data collection & method for analysis f. Informed Consent Steps of documentation – Title to Scope of study	**05**

4	**RESEARCH ETHICS** a. Importance of Ethics in Research b. Main ethical issues in human subjects research c. Main ethical principles that govern research with human subjects d. Components of an ethically valid informed consent for research	**05**
5	**OVERVIEW OF STUDY DESIGNS** a. Observational- i. Descriptive-Case study/ series, Cross sectional, Normative, Correlational ii. Analytical; case control, cohort b. Experimental- True & quasi experimental	**03**
6	**SAMPLING** a. Random and non-random sampling. b. Various methods of sampling – simple random, stratified, systematic, cluster and multistage. Sampling and non-sampling errors and methods of minimizing these errors.	**03**
7	**BASIC PROBABILITY DISTRIBUTIONS AND SAMPLING DISTRIBUTIONS** a. Concept of probability and probability distribution. b. Normal, Poisson and Binomial distributions, parameters and application. c. Concept of sampling distributions. d. Standard error and confidence intervals. e. Skewness and Kurtosis	**02**
8	**TESTS OF SIGNIFICANCE** a. Basics of testing of hypothesis – Null and alternate hypothesis, type I and type II errors, level of significance and power of the test, p value. b. Tests of significance (parametric) - t – test (paired and unpaired), Chi square test and test of proportion, one-way analysis of variance. c. Repeated measures analysis of variance. d. Tests of significance (non-parametric)-Mann-Whitney u test, Wilcoxon test, e. Kruskal-Wallis analysis of variance. Friedman's analysis of variance.	**03**
9	**CORRELATION AND REGRESSION** a. Simple correlation – Pearson's and Spearman's; testing the significance of correlation coefficient, linear and multiple regressions.	**01**
10	**STATISTICAL DATA** a. Tabulation, Calculation of central tendency and dispersion, Using software packages, Analysis, Presentation of data in diagrammatic & Graphic form	**03**
11	**RESEARCH REPORT** a. Overview, Types and Publication	**05**
Total		**40**

EXAMINATION SCHEME

Applicable for batch admitted in academic year 2019-2020

This course will not be assessed as Semester University Examination. Assessment will be conducted at constituent unit level

Theory question paper pattern for internal assessment under CBCS - 40 Marks

Question type	No. of questions	Marks/ question	Question X marks	Total marks
Section 1				
Short answer questions	8 out of 10	5	8x5	40
				Total = 40

EXAMINATION SCHEME

APLICABLE FOR BATCH ADMITTED FROM ACADEMIC YEAR 2020-2021 ONWARDS as per Resolution No 3.7 and 3.11 of AC 41/2021

University Examination Pattern (Theory) - 40 Marks

Question type	No. of questions	Marks/ question	Question X marks	Total marks
Section 1				
Short answer questions	8 out of 10	5	8x5	40
				Total = 40

Mid Semester Examination Pattern (Theory) : 20 marks

Question type	No. of questions	Marks / question	Question x marks	Total marks
Short answer questions	4 out of 5	5	4 x 5	20
				Total= 20

Internal assessment will be weighted out of 10 marks for internal examination (Theory)

RECOMMENDED TEXT BOOK

1. Mahajan, B. K. (2002). *Methods in biostatistics*. Jaypee Brothers Publishers.

2. Hicks, C. (1995). *Research for physiotherapists: project design and analysis*. Churchill Livingstone.