

Branch Name:	I MPT
Program Code:	PT201/ PT202/ PT203
Course Title:	Research Methodology and Biostatistics and Evidence Based Practice (RMB)
Course Code:	2PT2010102
Pre-requisite Course:	Ethics and Management

Teaching and Examination Scheme:

Teaching Scheme			Evaluation Scheme (Marks)				
Lecture (L)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
90	-	6	100	-	-	-	100

Course Outcomes:

1. Describe the history, evolution, and basic principles of ethics, professionalism, and legal responsibilities in physiotherapy and healthcare research.
2. Apply ethical and professional principles in clinical, academic, and research practices.
3. Explain the principles and processes of management, administration, and quality assurance in physiotherapy practice.
4. Apply effective communication and management skills in organizing and running physiotherapy services in hospital settings.
5. Explain the principles of education, learning theories, and teaching–learning processes relevant to physiotherapy.
6. Apply educational methods, learning outcome frameworks, and entrepreneurial skills in Physiotherapy education and practice.

Contents: M.P.T RMB Theory (L)

SECTION A: RESEARCH METHODOLOGY

RMB 1.1. Introduction to research

RMB 1.2. Types of research

RMB 1.3. Defining a research question

RMB 1.4. Qualitative study designs

RMB 1.5. Quantitative study

RMB 1.6. Type I and type II bias

RMB 1.7. Study design: types

RMB 1.8. Case study, Case series, longitudinal cohort, Pre post design, Time series design, repeated measures design, Randomized control design.

RMB 1.9. Sampling design, calculating minimum sample size based on design

RMB 1.10. Measurement: Properties of measurement: reliability, validity, responsiveness, MCID.

RMB 1.11. Outcome measures: Use of outcome measures in rehabilitation research

RMB 1.12. Research Methods: Designing methodology, Reporting results, Type I and Type II bias.

RMB 1.13. Communicating research.

RMB 1.14. Evaluating published research: looking at the evidence

RMB 1.15. Introduction to evidence-based practice, evaluating evidence,
RMB 1.16. Asking clinical questions
RMB 1.17. Translating of evidence into practice: strategies
RMB 1.18. Use of clinical practice guidelines, clinical pathways, prediction rules to inform practice.

SECTION -B: BIOSTATISTICS

RMB 2.1. Descriptive Statistics and measurement variability
RMB 2.2. Inferential Statistics
RMB 2.3. Comparison of group means: T-test
RMB 2.4. Analysis of variance
RMB 2.5. Multiple comparison tests
RMB 2.6. Parametric and non-parametric tests
RMB 2.7. Correlations
RMB 2.8. Regression
RMB 2.9. Analysis of frequencies: Chi square
RMB 2.10. Statistical measure of validity and reliability
RMB 2.11. Factorial Design analysis
RMB 2.12. Power analysis – Determining sample size, Epidemiological Measures – Rate, Ratio, Proportion, Incidence and prevalence, Relative risk, Risk ratio, Odds ratio
RMB 2.13. Application of various statistical software.

SECTION-C: SCIENTIFIC WRITING

RMB 3.1. Definition and kinds of scientific documents – Research paper, Review paper, Book, Reviews, Thesis, Conference and project reports (for the scientific community and for funding agencies).
RMB 3.2. Publication – Role of author, Guide, Co-authors.
RMB 3.3. Structure, Style and contents; Style manuals (APA, MLA); Citation styles: Foot, References; Evaluation of research
RMB 3.4. Significance of Report writing; Different steps in Report writing; Mechanics and precautions of writing research reports Oral and poster presentation of research paper in conferences/symposia; Preparation of abstracts.
RMB 3.5. Structure of Thesis and Content – Preparing Abstracts.

Recommended books for RMB:

1. Bailey, N.T.J. -Statistical methods in Biology. The English universities press, London
2. Bajpai, S.R.- Methods of Social Survey and Research, Kitab Ghar, Kanpur.
3. Colton - Statistics in medicine, Little Brown Company, Boston
4. Gupta, S.P -Statistical methods. Sultan Chand and Sons Publishers, New Delhi.
5. Goulden C.H.- Methods of Statistical Analysis. Asia Publishing House, New Delhi.
6. Mohsin S.M.- Research Methods in Behavioral Sciences: Orient Publications. New Delhi.
7. Mahajan - Methods in Biostatistics, Jay Pee Brothers.Medical Publishers (P) Ltd. New Delhi.
8. Hicks- Research for Physiotherapists, Churchill Livingstone, London.
9. Meenakshi. - First Course in Methodology of Research. Kalia Prakashan, Patiala.
10. Kumar, R.- Research Methodology. Pearson Education, Australia.
11. Snedecor,G.W -Statistical Methods, Allied Pacific Pvt. Ltd., London

12. Singh, I.- Elementary Statistics for Medical Workers. Jaypee Brothers Medical Publishers (P)Ltd. New Delhi.
13. Rehabilitation Research: Principles and Applications by Elizabeth Domholdt (Elsevier Science Health Science Div, 2004)

List of Open-Source Software/learning website:

- k-hub.in e library/A single platform for all e resources (K-hub, E Resource)
 - User Name- KB4605VNG
 - Password- BL@69BX!
- knowledgegainer.delnet.in (Delnet, E Resource)
 - User Name-gjspum
 - Password- spu10924