

**Semester-IV**  
**Theory Course**  
**IMTC 401- APPLIED STATISTICS IN PHYSICAL EDUCATION AND SPORTS**

**ESSENCE OF THE COURSE**

Knowledge of Statistical analysis and procedures is important for understanding the evaluation process in sports and games. This course begins with an overview of Statistical terms used in taking average mean and followed by fundamental concepts, mechanical concepts of evaluation in Physical Education and Research Process.

**COURSE LEARNING OUTCOME**

**After completing this course, the students will be able to**

- ) Define and describe the term Applied Statistics.
- ) Explain evaluation concepts through statistical analysis.
- ) Develop the knowledge and appreciation of the importance of the study of Statistics.
- ) Develop an understanding of the fundamental connection between data and analysis.

**COURSE CONTENTS**

- 16.1 Meaning and Definition of Statistics. Function, need and importance of Statistics. Types of Statistics. Meaning of the terms, Population, Sample, Data, Kinds of data. Variables; Discrete, Continuous. Parametric and non-parametric statistics.
- 16.2 Meaning, uses and construction of frequency table. Meaning, Purpose, Calculation and advantages of Measures of central tendency – Mean, median and mode.
- 16.3 Meaning, Purpose, Calculation and advances of Range, Quartile, Deviation, Mean Deviation, Standard Deviation, Probable Error. Meaning, Purpose, Calculation and advantages of scoring scales; Sigma scale, Z Scale, Hull scale, Normal Curve. Meaning of probability- Principles of normal curve – Properties of normal curve. Divergence from normality – Skewness and Kurtosis. Graphical Representation in Statistics; Line diagram, bar diagram, Histogram, Frequency Polygon, Ogive Curve.
- 16.4 Tests of significance; Independent “t” test, Dependent “t” test – chi – square test, level of confidence and interpretation of data. Meaning of correlation – co-efficient of correlation – calculation of co-efficient of correlation by the product moment method and rank difference method. Concept of ANOVA and ANCOVA.

**TEACHING LEARNING STRATEGIES**

- ) The content of the syllabus may be taught by using lecture method, discussion method, quiz method, educational videos, charts and assignment method depending upon the resources and facilities available at the University/Institute/ Department/Colleges.

**MODE OF TRANSACTION**

- ) Field Work/Project Work/Viva/Seminars/Term Papers/Presentations/Self- Learning Instructional Material etc.

## **ASSESSMENT RUBRICS**

**Marks: 100**

- ) End Semester Exam **Marks: 70**
- ) Classroom Test, Project Work, Assignments, Presentations **Marks: 30**
  - o Classroom Tests: Best one out of two unit tests **Marks: 10**
  - o Project Work, Assignments, Presentations **Marks: 20**

## **REFERENCE**

1. Best J. W (1971) Research in Education, New Jersey; Prentice Hall, Inc
2. Clark D.H. (1999) Research Problem in Physical Education 2<sup>nd</sup> edition, Eaglewood Cliffs, Prentice Hall, Inc.
3. Jerry R Thomas & Jack K Nelson (2000) Research Methods in Physical Activities; Illonosis; Human Kinetics;
4. Kamlesh, M. L. (1999) Reserach Methodology in Physical Education and Sports, New Delhi
5. Rothstain A (1985) Research Design and Statistics for Physical Education, Englewood Cliffs: Prentice Hall, Inc
6. Sivaramakrishnan. S. (2006) Statistics for Physical Education, Delhi; Friends Publication
7. Thirumalaisamy (1998), Statistics in Physical Education, Karaikudi, Senthilkumar Publications