

PROPOSED SYLLABUS FOR RESEARCH TOOLS

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Course Name : Research Instrumentation and Tools

~~Course Code~~ :

Course Type : Ph.D. Core course

Total Hours : 30

Total Marks : 50

Unit I: Fundamentals of Research Instruments

- 1.1. Concepts, Classification, and Characteristics of Research Instruments
- 1.2. Standardization and Norms for Reliability, Validity, and Objectivity in Measurement Tools
- 1.3. Development of Questionnaires, Checklists, Rating Scales and Interviews

Unit II: Instruments for Physical and sports sciences

- 2.1. Basic anthropometric measurements and instruments including stadiometer, skinfold calipers, sliding calipers etc.
- 2.2. Important tools of physical education and sports sciences
 - i. Spirometer
 - ii. Ergometers (bicycle, treadmill and related math/calculations)
 - iii. Sphygmomanometer
 - iv. Motion analysis
 - v. Heart rate monitor
 - vi. Dynamometers
 - vii. Flexometers
 - viii. Goniometry
- 2.3. Important Tests
 - 2.3.1. Scales for different psychological and sociological variables (Any five)
 - 2.3.2. Testing fitness/ motor fitness and related practical math/calculations
 - 2.3.3. Likert scale and Borg scales for different applications

Unit III: Technological Advances and Applications

- 3.1. Computer-Assisted Data Collection and Analysis Tools (e.g., MS Excel, SPSS and others)
- 3.2. Video recording for documentations and research data.
- 3.3. Selected software for research (literature search, bibliography, plagiarism testing etc.)

विभागाध्यक्ष/Head
शारीरिक शिक्षा और खेल विज्ञान विभाग
Department of physical Education and Sports Sciences
(दिल्ली विश्वविद्यालय/University of Delhi)
बी-ब्लॉक, विकासपुरी, नई दिल्ली-110018
B-Block, Vikaspuri, New Delhi-110018

References

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