



**ANNA UNIVERSITY OF TECHNOLOGY, COIMBATORE**  
COIMBATORE – 641 047.

**CENTRE FOR RESEARCH**

**SYLLABUS - RESEARCH METHODOLOGY – FACULTY OF ENGINEERING AND  
MANAGEMENT STUDIES**

**Unit I:** Research methodology – definition, mathematical tools for analysis, Types of research, exploratory research, conclusive research, modeling research, algorithmic research, Research process- steps.

Data collection methods- Primary data – observation method, personal interview, telephonic interview, mail survey, questionnaire design.

Secondary data- internal sources of data, external sources of data.

**Unit II:** Scales – measurement, Types of scale – Thurstone’s Case V scale model, Osgood’s Semantic Differential scale, Likert scale, Q- sort scale.

Sampling methods- Probability sampling methods – simple random sampling with replacement, simple random sampling without replacement, stratified sampling, cluster sampling. Non-probability sampling method – convenience sampling, judgment sampling, quota sampling.

**Unit III:** Hypotheses testing – Testing of hypotheses concerning means (one mean and difference between two means -one tailed and two tailed tests), Concerning variance – one tailed Chi-square test.

**Unit IV:** Nonparametric tests- One sample tests – one sample sign test, Kolmogorov-Smirnov test, run test for randomness, Two sample tests – Two sample sign test, Mann-Whitney U test, K-sample test – Kruskal Wallis test (H-Test)

**Unit V:** Introduction to Discriminant analysis, Factor analysis, cluster analysis, multi-dimensional scaling, conjoint analysis.

Report writing- Types of report, guidelines to review report, typing instructions, oral presentation

**REFERENCES**

1. Kothari, C.R., Research Methodology –Methods and techniques, New Age Publications, New Delhi, 2009.
2. Panneerselvam, R., Research Methodology, Prentice-Hall of India, New Delhi, 2004.