

Research Methodology

Sr. No.	Contents
1.	Basics: Meaning of Research, Purpose of Research, Types of Research (Educational, Clinical, Experimental, Historical, Descriptive, Basic applied and Patent Oriented Research) – Objective of research-
2.	Literature Survey – Use of Library, Books, & Journals – Medline – Internet, getting patents and reprints of articles as sources for literature survey.
3.	Selecting a problem and preparing research proposal for different types of research mentioned above.
4.	Methods and Tools used in Research: Qualitative studies; Quantitative studies; Simple data organization; Descriptive data analysis; Limitations and sources of error; Inquiries in form of Questionnaire, Opinionnaire or by interview; Statistical analysis of data including Variance, Standard deviation, Students ‘t’ test and Analysis of variance (ANOVA), Correlation data and its interpretation, Computer data analysis
5.	Documentation: ‘How’ of documentation; Techniques of documentation; Importance of documentation; Uses of computer packages in documentation
6.	Research Report/Paper/Thesis Writing <ul style="list-style-type: none"> • Different parts of the Research paper • Title – Title of project with author’s name • Abstract – Statement of the problem Background list in brief and purpose and scope • Key-words- • Methodology-Subject, Apparatus/Instrumentation, (if necessary) and procedure • Results – Tables, Graphs, Figures, and Statistical Presentation • Discussion – Support or non-support of hypothesis – practical & theoretical implications, conclusions • Acknowledgements • References • Errata • Importance of spell check for Entire project □ Use of footnotes
7.	Presentation (Oral/Poster): Importance, types, different skills; Content of presentation, format of model, Introduction and ending; Posture, Gestures, Eye contact, facial expressions stage fright; Volume- pitch, speed, pauses & language; Visual aids and seating; Questionnaire
8.	Introduction to Intellectual Property (IP) Aspects of Research (Patents and Trademarks, Designs and Copyrights): The Patent System in India – Present status of Intellectual Property Rights (IPR), Future changes expected in Indian Patents System; Advantages; The Science in Law, Turimetrics (Introduction); What may be patented; Who may apply for patent; Preparation of patent document; Registration of patent in foreign countries and vice-versa
List of Textbooks/ Reference Books	
1.	Best, J. W., Kahn, J. V., Jha, A. K.; Research in Education; 10 th ed.; Pearson, New Delhi, India (2005).
2.	Mcfarlane, G.; Business Law Series: A Practical Introduction to Copyright; McGraw-Hill, UK (1982)
3.	Davis, R. M.; Thesis Projects in Science and Engineering: A Complete Guide from Problem Selection to Final Presentation; St. Martin's Press, (1980).
4.	<u>Anderson, J., Durston, B. H., Poole, M. E.</u> ; Thesis and Assignment Writing; John Wiley, United States (1970).
5.	Menzel, D.; Writing a Technical Paper; McGraw-Hill, United States (1961).
6.	Brown, L.; Effective Business Report Writing ; Prentice-Hall, United States (1973).
7.	WIPO Intellectual Property Handbook; WIPO Publication (2004).
8.	Carter, M.; Designing Science Presentations: A Visual Guide to Figures, Papers, Slides, Posters, and More; Academic Press, London (2013).

9.	Ranganathan, S. R.; Documentation : Genesis and Development; Ess Ess Publications, India (2006).
10.	Manual for Evaluation of Industrial Projects – United Nations Industrial Development Organization (UNIDO) Publication (1986). (https://open.unido.org/api/documents/4788156/download/MANUAL%20FOR%20EVA)
11.	Behrens, W.; Hawranek, P. M.; Manual for the Preparation of Industrial Feasibility Studies; United Nations Industrial Development Organization (UNIDO) Publication (1991) (https://owaisshafique.files.wordpress.com/2011/04/manual_for_the_preparation_of_industrial_feasibility_studies.pdf)