
IND 2619 METHODOLOGY FOR EMPIRICAL RESEARCH IN INDUSTRIAL ENGINEERING

TOTAL HOURS: 45 HOURS

CREDITS: 3 / CRITERIA 12

REQUIREMENT(S):

GOALS	Provide the student with the methodological knowledge necessary to conduct empirical research in Industrial Engineering.
SYLLABUS	Introduction to the research methodology: problem formulation; searching bibliographic databases; ethics and good research practices; elaboration of scientific articles. Methodologies for conducting empirical studies: literature review (narrative review, research synthesis, meta-analysis, hybrid, among others); surveys; case studies, action research.
PROGRAM	The logic and vocabulary of empirical research. Paradigms, concepts, constructs, theories, frameworks, models, heuristics and variables. Relations between variables: causality and concomitance. Hypotheses and Propositions. Induction and deduction. Empiricism and rationalism. Systematic bibliographical research and research syntheses. Types of review. Review of reviews. Meta-synthesis and Meta-analysis. Quantitative and qualitative content analysis. Main tools of content analysis. Main meta-analysis tools. Software for meta-analysis. Surveys. Definition. Phases. Processing and analysis. Quantitative methods in surveys: overview. Definition of Case Study. Simple and multiple case studies. Questionnaires, observation guides and interviews. Criteria of internal and external validity. Validity of content, discriminant and convergent validity. Stages of a case study. Teaching cases: techniques and use. Case Study and Research-Action: similarities and differences. Research protocols. Databases in case studies research. Techniques of analysis. Software for content analysis.
BIBLIOGRAPHY	De Poy & Gitlin (2011), Introduction to Research. Understanding and Applying Multiple Strategies, 4 th ed. Saint Louis: Elsevier. Cooper, D.R. e Schindler, P.S. (2014), Business Research Methods, 12 th ed. New York: McGraw-Hill.

Cooper, H.M., Hedges, L.V., Valentine, J.C. (Eds.). 2009. The Handbook of Research Synthesis and Meta-Analysis. Russel Sage Foundation, NY, USA.

**COMPLEMENTARY
REFERENCES**

Schmidt, F. L. & Hunter, J. E. (2015). Methods of meta-analysis: Correcting error and bias in research synthesis, 3rd ed. Sage.

Yin, R. 2009. Case Study Research, 4th ed. Sage: Thousand Oaks, CA, USA.

Gill, T.G. 2011. Informing with the Case Method: A Guide to Case Method Research, Writing and Facilitation. Informing Science Press: Santa Rosa, CA, USA.

Coughlan, P., Coughlan, D. (2002). Action research for operations management. International Journal of Operations and Production Management 22 (2), 220–240.

Forza, C. (2002). Survey research in operations management: a process-based perspective. International Journal of Operations and Production Management 22 (2), 152–194.

McCutcheon, D.M., Meredith, J.R. (1993) Conducting case study research in operations management, Journal of Operations Management, 11, 239-256.

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Rousseau D., Manning J., Denyer D. 2008. Evidence in Management and Organizational Science, The Academy of Management Annals, 2(1):475-515.

Tranfield, D., Denyer, D., Smart, P. 2003. Towards a methodology for developing evidence-informed management knowledge by means of systematic review, British Journal of Management, 14:207-222.

Voss, C., Tsikriktsis, N., Frohlich, M. (2002). Case research in operations management. International Journal of Operations and Production Management 22 (2), 195–219.