

CHAPTER 3

RESEARCH METHODOLOGY

3.1 RESEARCH OBJECTIVES

Based on identified research gaps the motivation for research in form of objectives has been mentioned below.

1. To explore various application of FRP and its manufacturing process and to carry out in-depth study of VARTM process for the manufacturing FRP composite.
2. To initiate learning about various experimental setup through exhaustive literature review on VARTM process.
3. To identify various challenges in conducting experiments on VARTM process.
4. To identify process parameters for VARTM process by extensive research review.
5. To implement design of experiment approach (DOE) for conducting experiments to minimize experimental run.
6. To develop methodology/process to perform VARTM process.
7. To design and develop indigenous VARTM experimental setup to investigate effect of various parameters affecting VARTM process.
8. To prepare natural fiber reinforced composite using VARTM process.
9. To investigate effect of degassing in laminate quality for VARTM process.
10. To carryout various testing involved in developing FRP composites for VARTM process.
11. To investigate effect of selected process parameters on fiber volume fraction, physical and mechanical properties and to perform morphological study.

Based on the above objectives following problem definition has been identified.

“Investigations of Process Parameters in Vacuum Assisted Resin Transfer Molding for the Development of Fiber Reinforced Composites”

3.2 RESEARCH METHODOLOGY

Based on given set of objectives and problem statements, research methodology is mentioned in Figure 3.1. It demonstrates steps of performed research carried out during execution of the work.

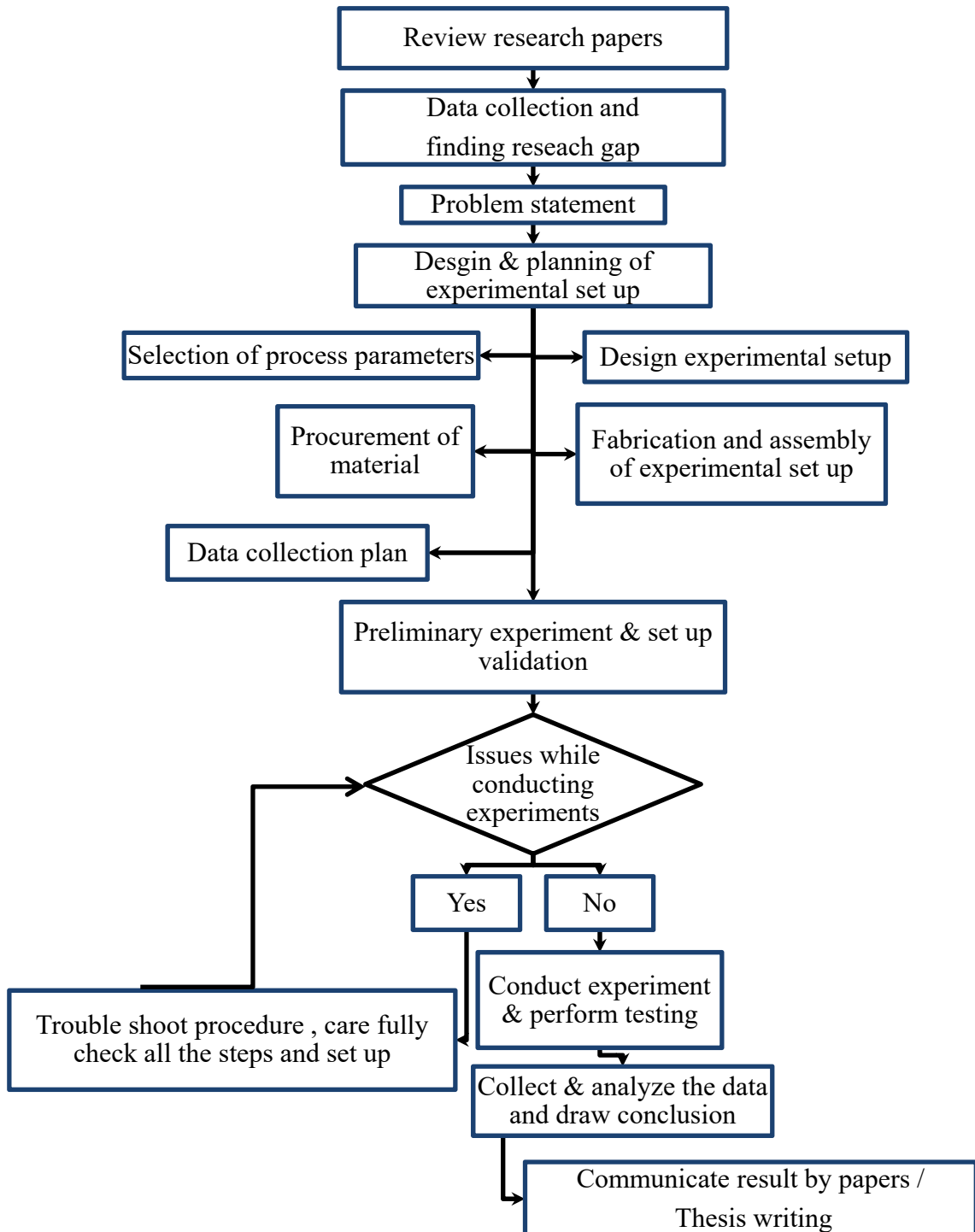


Figure 3.1 Research Methodology