



**NUMERICAL INVESTIGATION ON MECHANICAL BEHAVIOUR OF  
COMPOSITE SANDWICH STRUCTURE**

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## **ABSTRACT**

Composite sandwich structure is designed for light weight structure that required high structural strength and high stiffness. This project presents a study about sandwich construction and conducted a numerical investigation on mechanical behaviour of composite sandwich structure. The numerical analysis is done using SHELL91 one of the feature in ANSYS software. SHELL91 is an 8 noded, 3-D shell element with 6 degree of freedom at each node. The simulation is performed for three point bending, tensile and compression tests employing on sandwich structure composed of graphite epoxy skins and the aluminium core. The numerical results were compared with the experimental results from previous works, in order to prove the modelling is correct.

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## **CHAPTER I**

### **INTRODUCTION**

#### **1.1 Introduction**

In this chapter, the project background, objectives of project, scope of project and the significant of project were described.

#### **1.2 Project Background**

The project of 'Numerical investigation on mechanical behaviour of composite sandwich structure' is yielded in order to fulfil one of requirement of Bachelor in Engineering (Hons.) Mechanical. The purpose of study the composite sandwich structure is because the use of composite sandwich construction is rapidly increasing in current and future designs.

The properties and behavior of composite structure are difference from ordinary material such as metal, ceramic and polymer. Composite materials are one of alternative that can be used when high strength and high stiffness material but light weight is needed.