



## Abstract

This research document aims to achieve awareness among doctors and patients, that there are alternate options which are far from conventional ways to achieve it. By introducing an alternate option for bone replacement and joint implant material, this research will enable a very cost effective way as an alternate by introducing a new material in bio medical science. This material will be subject to various research factors throughout this document and also suggests this feasible material that has properties that is as good as a human bone. Theoretical explanations and calculations are conducted and documented to prove the new material's feasibility.

The document contains details of existing techniques and materials used for Bone Replacement and Joint Implants.

According to the structure of a final year dissertation this document consists of seven sections that serve as the body.

The Introduction phase will explain what joint implants and bone replacements mean. While explaining there will be facts about these surgery methodologies. These methodologies are well researched and then explained for the readers understanding. The materials used and the surgical procedures are explained.

Next the Literature review section will have a documented summary of all the literature read to understand the research topic and the methods that need to be undertaken for the research. The literature review briefly gives the ideas and theory shared by very knowledgeable individuals on the topic on bone replacement and implant materials.

The Analysis phase pits the facts of the currently used materials against the natural bone and also the newly identified composite material which can be used in joint implant and bone replacement.

Designing phase is when either 2D or 3D drawing are done for virtual experimentation. This section will explain how the modeling was done and how the model can be used for virtual experiments.