

To: Dr. Sarah Oman
From: The hope device team 14
Date: 03/15/2018
Re: Individual tasks analysis

Purpose of this memo is to define that tasks that will perform by each member for the individual analysis.

Stress Concentration (Mohammad Hesham)

Stress concentration in this project is basically the force that will apply over the product covered on the body, force will apply by the body and maximum force will be on the knee joint. So the analysis that will be done here, is finding the stress concentration when the device is loaded. This analysis is important to do for our project because we will determine where the maximum force is applied. The analysis is important to do for understanding the stress and to make the product. For stress concentration equation of stress will be used that depending on force and unit area.

Material Strength (Sultan Alajmi)

Material means the material that will be used to build the product. It is important to find the materials after the analysis because material can determine on the basis of needs and the need is to make the aiding equipment, which help person with disabilities. So material strength will be determined through the stress strain analysis. And from the analysis the best and strong material will find that will use to make the product. Material strength can be determined by the stress and strain analysis of materials so stress and strain equations will use in it. And then we will see how much force that can bear by the product. If the product will get break it will become useless. I will focus specifically on modulus of elasticity.

Range of Motion (Ali Alquraishi)

The product, which is building in this project, is basically a wearing aid that will help the person with disability to move or stand or performing any task so the analysis that will be done is finding the range of motion of body after wearing the equipment. This analysis is important in the context that if the person will wear the equipment and he will not able to move his part then there is no use of making such device. In the analysis I will find the motion range that will be feasible by human body and it will not fall down or face any accident after wearing it. That's why it is important to find the range of motion. For calculating the range of motion, equation of motion will use.

Stability (Abdulrahman Almuqrin)

Stability of the product is important to know, if the device is stable to use then it can actually implement and use for the human body, if the device is not stable then we need to make it stable through its design before its implementation. In this analysis I will do the safety about the device in order to determine the stability in static form using the stability formulation.