Project I Description

Project Name: **Augmented Balance Exoskeleton System for Paraplegic Persons**

Sponsor: **Phoenix Industries – LAU – Michael Haddad**

Team Size: **3 MEE Students**

Project Overview
T3-T4 and T4-T5 paralyzed persons are normally unable to stand-up or walk. Michael Haddad defied this paralysis and developed novel method of locomotion. His major breakthrough is his ability to balance himself on two sticks. The aim of this project is to develop an upper body balancing system that supports paralyzed persons in balancing themselves in similar ways that Michael does it. This device will require a supporting structure, a mechanism to augment balance without interruption to the motion of the user, and an active control system with feedback sensors.

Project Areas and Majors needed		
Kinematics and CAE (1 MEE Student)	Instrumentation (1 MEE Student)	Control Systems (1 MEE student)

Project Deliverables
Design and Build the following systems: • Develop and simulate the equations of motion for the system. • Determine the sensor(s) location. • Design an ergonomic and lightweight supporting structure to be manufactured at Phoenix Industries. • Design control algorithms • Implement and test the system