Executive Summary

       Technical Assignment 1 involved a study of the existing lighting conditions within my thesis building. To begin, I analyzed the existing lighting systems and compiled a list of fixture types and lamps in the building. These typically included recessed fluorescent fixtures as well as several pendant mounted varieties. Compact fluorescent downlights were common in the circulation areas. Additionally, I researched the types of control systems and found dimming panels were used prevalently, along with occupancy sensors.

       The next examination was of the important design criteria that would be used to evaluate the performance of the building. Utilizing the IESNA manual as well as the ASHRAE/IESNA 90.1 standard, I developed the list of criteria including providing adequate illumination, avoiding high levels of glare, and providing good lighting for facial rendering.

       The final section of the report examines the lighting systems in general and determines that they function adequately to provide the necessary lighting for the spaces. A more detailed examination of the spaces being considered for redesign follows. Minimum average lighting levels were exceeded in the aquaculture lab however the values were quite low in some areas, limiting the uniformity. The video conference room failed to perform as required, with too little illumination being provided in an uneven distribution. Lack of directional lighting would provide poor facial rendering for teleconferences. The atrium in the building met illumination requirements, providing relatively even light levels on each floor. Area lighting outside the building provided insufficient amounts of light. All areas met code requirements for power density as well as minimum control requirements.