**FACTORS AND CORRELATIONS**

**Goals-**

**1) Maintain Ideal Temperature in the classroom-**

Correlations- Outside Temperature, Room temperature, Number of occupants, HVAC System, Relative Humidity

\*Occupants thermal comfort is in cooler conditions thus, HVAC system is the most essential factor in keeping the room cold.

**2) Do not exceed Energy Consumption and Energy Cost Limits-**

Correlations- HVAC System, Light System, Additional Equipment Plug Loads, Solar Irradiance

\*\*The size of the classroom determines the capacity of the HVAC system and how many HVAC's we might need in the room. The same goes for the light system.

**Goal 1-**

r = room temperature = need to convert it to ideal temperature

h = relative humidity = it ranges between 40 – 60 but our preferred ranges is between 40-50; ideally at 45

a = HVAC = preferably set at 22 degrees = is the only source of either cooling or heating the room, can also be stated as the most efficient and necessary factor

n = number of occupants = 60 = humidity increases with the increase in number of occupants, HVAC System can be used to tackle this problem.

O = outside temperature

x = ideal temperature = preferably between 20-24 degrees

h / n = b = humidity for an individual

outside temperature can affect the room temperature and relative humidity of the classroom

if Relative Humidity > 50 || Relative Humidity < 40, HVAC is used for both cooling and heating

Room Temperature can achieve Ideal Temperature with the help of HVAC

Room Temperature and R. Humidity are proportional to each other.

**Goal 2-**

a = HVAC = preferably set at 22 degrees

l = lights

m = equipment plug loads

s = solar irradiance

Energy Consumptions of HVAC + Lights + Equipment Plug Loads <= 1 kWh

HVAC and Light tubes consumption and use depends on Solar Irradiance = If the solar irradiance is high, we can open the curtains and the lights can be switched off

HVAC is switched on during the entirety of the class, its temperature varies = If the outside temperature is cold, then the HVAC system can heat the room which will both consume and cost less than cooling.