

## Breadth Topics

### Architecture:

The use of solar shades will be investigated for possible energy savings, since the inclusion of shades on the exterior architectural facade were not included in the current design of the Science and Technology Building. The solar shades will only be placed on the south and southwest facades of the building. Allowing daylight into the spaces is important as each room does have a photocell to dim the fluorescent lights in the space. The daylight allowed into the space does lead to a positive learning environment for the university building. An overall evaluation will be done into which solar shading can be used comparing the amount and quality of light that will be transmitted through the various shading devices. The building loads and energy consumption will be compared to the current design that does not use solar shading as an element of the architecture. The cost savings associated with the energy use will be used to justify the additional first cost of the facade redesign.

### Construction:

The geothermal heat pump will be located on the central quad of Clarion University located adjacent to the building site. Many precautions will have to be made as construction site will be intrusive to all students travelling on campus. Safety and site utilization plans for the central quad construction site will have to be developed to ensure the safety of the students and faculty along with preserving access through the central quad to the adjacent buildings. The schedule of the construction process for installing the geothermal heat pumps will be evaluated to ensure that the Clarion University campus is affected for the least amount of time. Another consideration will be trying to get the construction time frame to fit the summer months when campus has less activity.