



12 C Physics (SPH 4C)



This course develops students' understanding of the basic concepts of physics. Students will explore these concepts with respect to motion; mechanical, electrical, electromagnetic, energy transformation, hydraulic, and pneumatic systems; and the operation of commonly used tools and machines. They will develop their scientific investigation skills as they test laws of physics and solve both assigned problems and those emerging from their investigations. Students will also consider the impact of technological applications of physics on society and the environment.

Motion and its Applications

- All motion involves a change in the position of an object over time.
- Motion can be described using mathematical relationships.
- Many technologies that utilize the principles of motion have societal and environmental implications.



Hydraulic and Pneumatic Systems

- Fluids under pressure can be used to do work.
- Fluids under pressure have predictable properties and many technological applications.
- The uses of hydraulic and pneumatic systems can have social and economic consequences.



Mechanical Systems

- Mechanical systems use force to do work.
- The operation of mechanical systems can be described using mathematical relationships.
- Friction is a force that influences the design, use, and effectiveness of mechanical systems.
- Mechanical systems can be used to address social and environmental challenges.



Energy Transformations

- Energy can be transformed from one type to another.
- Systems that involve energy transformations are never 100% efficient.
- Although technological applications that involve energy transformations can affect society and the environment in positive ways, they can also have negative effects, and therefore must be used responsibly



Electricity and Magnetism

- Relationships between electricity and magnetism are predictable.
- Electricity and magnetism have many technological applications.
- Technological applications that use electricity and magnetism can affect society and the environment in positive and negative ways.