Georgia Department of Education
Career Pathway Descriptions

Energy Cluster

Educational programs in the Energy Cluster prepare students for careers in planning, managing and providing support and technical services related to the generation, transmission and distribution of various types of energy along with the engineering design, construction, maintenance and repair of these systems.

Energy and Power: Generation, Transmission, and Distribution Pathway

The Energy and Power: Generation, Transmission, and Distribution Pathway is a pathway within the Energy Career Cluster. Developed with the GEICC Consortium and the GaDOE this pathway allows students to learn the key concepts and methods of energy systems, applications and efficiency. Students will also explore how energy is converted into useful services and the role of increased efficiency in providing those services with less energy. The different forms of efficiency improvements and conservation are introduced, drawing upon examples in transportation, buildings, and industry. The practical implications of public policies, behavior, and economics are interspersed with technical and theoretical aspects. Key concepts include how to convert and design efficient energy systems. This pathway will introduce students to energy and power systems technologies. Students will understand mechanical, electrical, fluid, and alternate systems. Students will also identify and understand energy resources. This pathway will cover the codes, regulations, and industry standards that are currently in place for sustainable energy buildings and green buildings. Evaluation of a building style and the energy efficient materials used in its construction will be included. Students will develop an awareness of the energy crisis and the use of alternative energy. This pathway culminates with an opportunity for students to take the NOCTI Engineering or SkillsUSA Engineering end of pathway assessment.

Course 1 - Foundations of Energy Technologies 49.53700
Course Description: This introductory course is designed to allow students to develop a broad understanding of the energy industry including infrastructure, generation, transmission and distribution of nonrenewable, renewable, and inexhaustible energy sources. Energy sources will be researched to include the regional and global economic implications, environmental, and sustainability issues. Students will explore future trends of energy and power. Students will develop, through research, an alternative energy system that will demonstrate their understanding of a unique, as well as appropriate, approach to energy and power generation.

Course 2 – Energy and Power: Generation, Transmission, and Distribution 49.53800
Course Description: Energy and Power: Generation, Transmission, and Distribution is the second course in the Energy Systems pathway. In this course, students will continue to learn about energy and power industry fundamentals by furthering their knowledge regarding electric power generation, transmission and distribution. In addition, the students will gain knowledge about business models, regulations, and safety within the energy industry.

Course 3 – Energy Systems Applications 49.53900
Course Description: As the third course, Energy Systems Applications explores the relationship between force, work, energy, and power. Students study the characteristics, availability, conversion, control, transmission, and storage of energy and power, as well as examine and apply the principles of electrical, fluid, and mechanical power. Students research renewable, non-renewable, and inexhaustible resources and conservation efforts. Using their course-acquired skills, students will further understand the many careers that exist in energy and related technologies.

For more information, please contact Mark Crenshaw at mcrenshaw@doe.k12.ga.us