Curriculum at a Glance
Technology, Engineering, STEM, Business and Computers
9-12 Fundamentals

In the DHS Fundamentals of Engineering Program students are introduced to practical problem solving through design, communications, production and manufacturing, and transportation systems. Typical topics will include robotics, computers, bioengineering and alternative energy. Units include Communication, Energy & Power, Transportation, Manufacturing, and Bio Engineering.

Communication Projects	● Present findings of experiment/project with programs such as a PowerPoint or Prezi ● Graphic representation of objects such as sketching and CAD drawings
Energy and Power Projects	● Create an apparatus that induces electricity using magnetism. ● Build and explain the physics behind a homopolar motor (a motor with one magnet) ● Determine energy leaks around the school and write an improvement proposal
Transportation Projects	● Design and build a vehicle that operates using an alternate energy. ● Design and construct a maglev vehicle ● Design and build a hovercraft
Manufacturing Projects	● Design and build a product to put into production ● Follow the entire manufacturing system outline from conception to finished product, ready to sell
Bio-Engineering Projects	● Improve upon a current medical apparatus. ● Build both a prototype and working, scale model to test feasibility. ● Utilize 3D printing, modeling software and lasers to enhance typical prototyping and manufacturing techniques.

Unit Name/Description	Content and/or Skills
Communication	• Information and Communication Technologies • Communicating Effectively • Issues and Impacts that change the way people live and interact
Energy and Power	• Students will develop an understanding of work, energy and power • Student will learn to safely use a wide variety of technological systems, tools and machines • Students will gain an understanding of clean energy systems • Student will explore how technology is a force of change in workplaces, jobs, occupations and careers
Transportation	• Transportation systems provide the means of moving people and goods from place to place • Transportation systems are made up of subsystems (i.e. propulsion, control, etc.) • How government regulations influence the design and operation of transportation systems
Manufacturing	• Through practice and exploration students will gain understanding of manufacturing techniques and costs
Bio-Engineering	• Students will be able to identify, define, and describe different Biotechnologies • Students will use their knowledge to design and build apparatus' to depict Biotechnologies and their uses • Students will learn to use a variety of biotechnology tools and gain understanding of them. • Students will explore how this new field of study will force change in workplaces, careers, university studies and medicine