Advanced Technological Applications At-A-Glance

Intended Audience: Grades 10-12   **Course Length: 36 weeks**

In this course, students study four components of the Designed World:

Engineering Design Graphics and Spatial Skills: It is important for students to develop the ability to communicate different information of technical drawings and display an understanding of geometric construction.
- **Towers, Parks and Constructing with Shapes**
- **Multiviews and 2D Drawing using CAD Software**
- **ADA Compliant Public Park and Auxiliary Views**
- **3D Solid Modeling and Geometric Constraints**

Cybersecurity: Oxford Living Dictionaries defines cybersecurity as **"the state of being protected against the criminal or unauthorized use of electronic data, or the measures taken to achieve this."** Cybersecurity is a serious topic. In today's world, we manage more and more of our lives digitally from banking and paying bills to online shopping and completing applications; personal and company information needs to be kept secure. It is important that students understand cybersecurity to keep their digital lives safe and spot cyber scams.
- **Digital Literacy**
- **Online Ethics**
- **Software Threats**
- **Spam, Scams, Fraud, and Identity Theft**

Biotechnology: For thousands of years, humans have depended on the natural world to take care of our needs. The herbalist used plants as medicine, the soap maker rendered animal fat to make soap, and the baker added the microorganism yeast for leavened bread were all examples of people using organisms to make our lives better. These examples are part of a larger story in a field called biotechnology, where plants, animals, and microorganisms continue to provide human needs and wants in a multitude of ways. Fast forward to the 21st century and biotechnology has become entrenched in our daily lives in ways that we do not even realize. As our understanding of the applicability of biotechnology grows, we further explore solutions to resolve technological constraints that once inhibited our society's advancement.
- **Biotechnology Defined**
- **Introduction to Biotechnology and Plants**
- **Introduction to Biotechnology and Animals**
- **Introduction to Biotechnology and Microscopic Organisms**

Information Technology: Modeling and prediction based on visualization of data and testing design involves changing inputs on the fly to see the effects on the outcomes.
- **Excel Worksheet Appearance**
- **Cell Referencing and Functional Code in Excel**
- **Charts and Visual Communication**
- **Modeling Retirement Savings**

Robotics: Robotics and automation technologies have a significant impact on our daily lives. From temperature controls in our homes to high tech manufacturing to agricultural applications, automating inputs, processes and outputs has the potential to make our lives easier, safer and more interesting. Students are engaged in context rich applications such as home automation, agricultural crop harvest, prosthetics and self-driving cars.
- **Introduction to Robotics**
- **Soft Actuators**
- **Smart Homes**
- **Flowcharts**

For More Information

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