Technology

Technology Education is a program of instruction in the resources and systems of technology, and technology's impact on the individual and society. Students enrolled in Technology Education courses study the major technological systems of the world and our society. Various components or processes which are fundamental to technological systems are studied in detail. Technology Education courses have been designed to meet the needs of all academic levels and are taught through laboratory based hands-on learning activities. Students locating an occupation area of interest may pursue it further through the Career & Technical Education (CTE) at Center for Instruction, Technology and Innovation (CiTi) and/or SUNY two or four year technical colleges. All Technology Education courses are open to all students.

0731 ● Fine Woodworking 20 Weeks ● .5 Credit ● Grades 9-12

Fine Woodworking is designed for the student who wants to know more about wood and wood products, equipment, processes, safe use and care of machines. It is intended to encourage students to develop competent technical skills in the broad areas of woodworking. Each student will have instruction in design, equipment, joinery, lamination, construction, and finishing. Students may select their own individual project that will give experience with various wood joints and more complex machine operations. The importance of safety will be stressed throughout the course.

0722 ● Manufacturing Systems 20 Weeks ● .5 Credit ● Grades 9-12

Prerequisite: Fine Woodworking required.

This course provides instruction in the manufacturing aspects of industry, the basic organization of industry with units covering materials processing, manufacturing processes, mass production, and business organization for manufacturing a product. Students are instructed in areas of manufacturing systems which explores the use of jigs, fixtures, and assembly that are incorporated into the production process. Each class will become familiar with manufacturing and organize the class to mass-produce.

0726 ● Electricity 20 Weeks ● .5 Credit ● Grades 9-12

Provides a study of electricity in the home. Students will have hands on exposure to single throw, 3-way, and 4-way switch systems. Each system will be constructed, tested, trouble shot for accuracy, and inspected. Because electricity has had such an impact on our lives, it is important to know its uses, dangers, and its potential for the future.

0733 ● Basic Welding 20 Weeks ● .5 Credit ● Grades 9-12

This is a course designed to introduce students to the methods, techniques, and equipment needed for each of the common welding processes. Techniques to be covered within oxy-acetylene welding include tinning, brazing, oxy-cutting, sweat soldering, and filler rod welding. The areas of arc welding including GMAW, SMAW, TIG, and Plasma will also be explored. In addition, proper use of equipment, basic metalworking, welding safety, proper assembly and testing of materials will be covered.

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0729 ● Transportation Systems 20 Weeks ● .5 Credit ● Grades 9-12

This course provides an overview of aviation, land and marine transportation. Types of propulsion systems, power transmission, navigation, control and communication are covered. Students will work on such projects as engines, gliders, radio-controlled models, chassis design, wind tunnel testing and navigation. **NOT OFFERED FOR 2021-2022.**

0724 ●Web & Graphic Design 20 Weeks ●.5 Credit ● Grades 9-12

Today's students are being exposed to many different forms of communication in this ever-changing world of technology. Web and Graphic Design is a part of every student's day, the Internet, email and messaging programs all use graphics to bombard the student in school as well as day-to-day life.

Web & Graphic Design allows students to learn about what makes up this new and ever-changing world of communication and explore the possibility of potentially working in that field. This course covers a vast range of media from desktop publishing to web-based design, allowing students to explore new media as well as study traditional and pre-existing media.

By exposing students to this course of study, it not only prepares the student for the future, but it will encourage progress in the field of graphic communications. As students begin to see why communication is important, they will begin to form their own thoughts of advancing the subject.

Web & Graphic Design is designed to be hands on course where students will participate by working on projects and other assignments individually and as part of a group. These projects will implement a variety of different skills that all students will be expected to learn throughout the course. Student will work in different roles in the class to learn different skills and will become more familiar with more facets of graphic arts. **NOT OFFERED FOR 2021-2022.**

0736 ●Design & Drawing for Production (DDP) ● 40 Weeks ● 1Credit Grades 9-12

This course may be used to satisfy the High School Fine Arts requirement.

This course uses computers extensively to take you from a new idea to the methods of producing the final product that sits on the store shelf. Students solve everyday problems of design, using a common graphic language to describe shapes or guild models. Discover how our industry and engineers use CAD to detail information and build new products. Learn to make a computer draw and design for you. Understand the way a computer can be used to present projects, using drawings, photographs, movies and music. Discover how to design a package so that it will sell when it reaches the market place. Learn how to analyze new products so that you get the most for your money. In addition to the design process, six basic areas of technical drawing: orthographic projects, pictorial drawing, sections, auxiliaries, revolutions, and developments are included in this course. Students must draw, analyze, creatively design, and critically

evaluate their design projects. This course requires students to work on the computer during most class assignments. This course may be used to satisfy the High School Art/Music graduation requirement. **NOT OFFERED FOR 2021-2022.**

0736APLTW ● IED/DDP PLTW ● 40 Weeks ● 1 Credit ● Grades 9-12**

This course may be used to satisfy the High School Fine Arts requirement.

In this course, students use 3D solid modeling design software to help them design solutions to solve proposed problems. Students will learn how to document their work and communicate solution to peers and members of the professional community. This course is designed for students who show an interest in engineering. The major focus of the IED course is to expose students to the design process, research and analysis, teamwork, communication methods, global and human impacts, engineering standards and technical documentation. **Students have the option of earning college credit from RIT after they get the results of the end of the year exam in June and meet the college requirements. The approximate cost to receive college credit is $200.**

0742APLTW ● Computer Integrated Manufacturing CIM/PLTW
40 Weeks ● 1 Credit ● Grades 10-12**

Prerequisite: DDP/PLTW (Intro to Engineering Design)

This course is an introduction to Robotics and CNC Machining. Builds upon the computer solid modeling design skills developed in PLTW – Intro to Engineering Design (DDP). Students will be presented with design problems that require the use of Autodesk Inventor to develop solutions to problems. They will use rapid prototyping equipment to produce three-dimensional models of the solutions, as well as learn how to program a CNC machine and robots to create their design. **Students have the option of earning college credit from RIT after they get the results of the end of the year exam in June. The approximate cost to receive college credit is $200.**

0745APLTW ● Digital Electronics (DE/PLTW)40 Weeks ● 1 Credit ● Gr 10-12**
Project Lead the Way

Prerequisite: DDP/PLTW (Intro to Engineering Design/DDP)

From smartphones to appliances, digital circuits are all around us. This course provides a foundation for students who are interested in electrical engineering, electronics, or circuit design. Students study topics such as combinational and sequential logic and are exposed to circuit design tools used in industry, including logic gates, integrated circuits, and programmable logic devices. **Students have the option of earning college credit from RIT after they get the results of the end of the year exam in June. The approximate cost to receive college credit is $200.**

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0460APLTW ● Principles of Engineering 40 Weeks ● 1 Credit ● Grades 11-12**

Project Lead the Way (POE/PLTW)

Prerequisite: Integrated Algebra and Geometry, 2 Years of Science, IED/DDP (PLTW)

This is a broad-based survey course designed to help students understand the field of engineering and engineering technology and its career possibilities. Students will develop engineering problem solving skills that are involved in post-secondary education programs and engineering careers. They will explore various engineering systems and manufacturing processes. The main purpose of this course is to experience through theory and hands-on problem-solving activities what engineering is and "Is a career in engineering or engineering technology for me?" **Students have the option of earning college credit from RIT after they get the results of the end of the year exam in June. The approximate cost to receive college credit is $200. NOT OFFERED FOR 2021-2022.**

0750 ● Automation & Robotics 20 Weeks ● .5 Credit ● Grades 9-12

Prerequisite: None

This is a beginning course in robotics. We will be utilizing various Robot platforms and software. The objective of this course is to introduce the student to basic programming as well as problem solving strategies. This course will involve students in the development, building and programming of robots. Students will work hands-on in teams to design, build, program and document their progress. Topics may include motor control, gear ratios, torque, friction, sensors, timing, program loops, decision-making, timing sequences, and propulsion systems. Student designed robots will be programmed to compete in various obstacle courses and competitions seen in local and state robotics competitions.

Students will:
-Work hands-on in teams to design, build, program and document their progress.
-Learn basic robot programming language and software.
-Design and build robots to perform using robots.
-Work in groups to solve problems using robots.
-Compete with classmates on robotic solutions.

0751 ● Robotics 2 20 Weeks ● .5 Credit ● Grades 9-12

Prerequisite: Automation & Robotics

Robotics 2 continues to process begun in Robotics 1 and allows students to pursue more advanced applications of the framework that was introduced during the previous semester. Students are encouraged to actively pursue a chosen specialty and apply their knowledge to the construction and coding of various prototypes to meet the design specifications that they have established in conjunction with their groups and mentor.