

**Area Technology Education**

Carl Roll (Chairman)

**I. PROGRAM PHILOSOPHY**

The purpose of this program is to provide students with a foundation of knowledge and technically oriented experiences in the study of the applications of technology and its effect upon our lives and the choosing of an occupation. The content and activities will also include the study of safety, and leadership skills. This program focuses on transferable skills and stresses understanding and demonstration of the technological tools, machines, instruments, materials, processes and systems in business and industry. The program is designed to acquaint students with the many facets of the broad career cluster and to help them to make informed choices in coursework at the high school level to insure career goal attainment.

**II. PROGRAM GOALS**

The emphasis of this program is on developing awareness of future needs, developing technological competence, confidence and awareness through interaction with technologies, developing awareness of other career and technical programs, interacting with business, industry and community organizations, applying basic skills in learning activities, and developing self-awareness of individual abilities, needs and interest. The courses are intended to help students develop their problem-solving skills and creativity while learning about technology and careers.

**III. STUDENT ACTIVITIES**

Students will learn to gather data through research as well as to document their results and processes. Introduce students to the development of abilities to calculate, make important observations, analyze and solve problems working cooperatively with others using hands-on experiences.

Demonstrate an understanding of:

The characteristics and scope of technology.

The core concepts of technology.

The relationships among technologies and the connection between technology and other fields of study.

Cultural, social, economic, and political effects of technology.

The effects of technology on the environment.

The role of society in the development and use of technology.

The influence of technology on history.

The attributes of design.

Engineering design.

The role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving.

The abilities to apply the design process.

The abilities to use and maintain technological products and systems.

To assess the impact of products and systems.

Be able to select and use:

Medical technologies.

Agricultural and related biotechnologies.

Energy and power technologies.

Information and communications technologies.

Transportation technologies.

Manufacturing technologies.

Construction technologies.

Procedures while working with technological tools, apparatus, equipment, systems, and materials.

Exhibit positive human relations and leadership skills.

Discuss individual interests and opportunities as they relate

**IV. ORGANIZATIONAL NOMENCLATURE**

Teacher-Student Ratio 1:24 Student Capacity per Period 24

Total No. of Teachers 1

Total No. of Aides N/A (if applicable)

Grade Levels or Age Levels for Which Program is Intended 6-8

Hours per Day Space Will Be Used 5 periods/day

**V. PROGRAM FACILITIES LIST**

Fish Code	No. of Areas	Description of Area	No. of Staff Per Area	No. of Students Per Area	No. of Students Total	Net Sq. Ft. Per Unit	Net Sq. Ft. Total
240	1	Orientation / Exploration				2280	2280
808	1	Storage, Material	□			90	90
851	1	Storage, Tool	□			310	310
849	1	Storage, Project	□			310	310
852	1	Technology Resource	□			800	800

**VI. SPECIAL CONSIDERATIONS**

**(1) Heating/Cooling/Ventilation**

Provision for year round use of facilities must be provided through heating and air conditioning. Air conditioning is necessary, not only for student and teacher comfort and effectiveness, but also for protection of equipment from rust and corrossions damage due to humidity. Laboratories involving the use of dust producing equipment, such as woodworking machines, should be provided with dust removal equipment ducted to each individual machine. Furnaces, heat treating equipment, engine exhausts and finishing areas must be ventilated by forced means to the atmosphere.

**(2) Acoustical**

Sound absorbing treatment of ceilings and walls should be incorporated to reduce the noise level within the laboratory area and prevent interference with adjacent facilities. Instructor's office should be acoustically constructed to provide a quiet environment for planning or, more specifically, for use during planning periods whiles the shop is in use by another instructor and class.

**(3) Floor**

Tiled for lab and storage. Office area to be tiled. Natural concrete for covered and uncovered outside area.

**(4) Walls**

Permanent walls (CMUS) painted in a suitable color. Tool storage racks need to be located in the

**(4) Ceiling**

Shop ceilings need to be at least 16', with undisturbed areas. This height will permit the organized, vertical storage of material. This height will also permit the construction of small building, storage sheds, etc. indoors.

**(5) Lighting**

Natural and artificial light should be supplements one to the other. Windows should be above eye level to avoid outside distractions and allow sue of wall space. Artificial lighting should be such as to permit full night-time use of the facility. Fluorescent lighting is preferred, but stroboscopic effects on moving machinery must be avoided. Lighting must be glare-free, shadow less, and diffused and be of a level to conform to the types of work to be performed, according to the standards developed by the lighting industry. Outdoor lights for covered and uncovered area. Emergency lighting should also be provided. Lighting must be protected from damage (screened) and must be of sufficient height to prevent being struck.

**(6) Windows**

View windows should be provided from the office area into the shop, classroom and storage area. Outside windows should be elevated to prevent distractions. Windows must provide ventilation when a/c not in use.

**(7) Doors**

Provide at least one double wide door that opens onto the patio work area and is used for supply and material shipments. Provide a wide door from the classroom area to the shop (to help facilitate the movement of demonstration carts, tables, etc.)

**(8) Water**

Hose bib located in both patio area. Clean-up wash area needed to accommodate 24 students at the same time. Sinks to be located in both lab and patio areas for wash-up. A drinking fountain is a must in the shop area.

Provisions for disposal of toxic materials, paint thinner, etc. should be provided. Both hot and cold water at sink.

**(9) Communications**

Two-way intercom in lab and office. Telephone direct (extension). Clock in lab and office. Computer data lines and internet access from all computer stations.

**(10) Electrical**

Wall outlets in classroom area. 14 dedicated 110 volts outlets for computers in classroom. 110 duplex outlets located every 6' on walls of lab. Two outlets in material storage and office. Master control panel for lighting and all equipment to be located in office. Master kill switch for power machinery located on each wall of lab, and in center of shop.

If required, provision should be made for three phase machinery and tools.

**(11) Gar and Air**

N/A

**(12) Safety**

Master kill switches for power machinery. Adequate fire extinguishers of proper size must be provided in accordance with local fire regulations. Master reset switch located in office. Emergency exits located at opposite ends of the shop. Dust collection units connected to all machinery.

**(13) Fencing**

N/A

**(14) Service Drives**

Service drive for delivery of materials.

**(15) Parking**

N/A

**(16) Built-ins**

**A. Built-in work counter**

Adequate built-in counter space needs to be provided for equipment used in the construction, assembly and finishing of student projects.

**B. Built-in cabinets/shelving**

Adequate built-in cabinets and shelving needs to be provided for student projects, supplies and materials, and for books and reference materials.

A portion of one shop wall could house a built-in shelf system for student project storage. This shelf should be 8' in height, with a minimum of 24" depth. The width will depend on available wall space, but should be constructed to hold at least 24 two foot square storage walks.

Adjustable shelves will be used in the material storage area.

**C. Built-in Instructional Aids**

Lab to have one whiteboard, approximately 4'x8' on wall with erasure rails; bulletin boards/tack boards, approximately 4'x6'; one AV screen mounted on wall or ceiling.

**D. Other Built-ins**

Built-in storage cabinet and bookshelves at back of office area.

**(17) Other Considerations**

Toilet facilities should be in close proximity to each lab, but not necessary within the lab. Lavatories should be provided within each work area sufficient to permit the entire class to wash up in a few minutes near the end of the class period. Refrigerated drinking fountains are needed. Construction and manufacturing lab located adjacent to each other.

# TECHNOLOGY EDUCATION

