

PUBLIC SCHOOLS OF NORTH CAROLINA

Career-Technical Education Equipment Guide



REVISED 2004

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CAREER-TECHNICAL EDUCATION EQUIPMENT GUIDE

Revised 2004

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FOREWARD

Career-Technical Education is an integral component of the North Carolina Standard Course of Study for grades six through twelve. Equipment to effectively support the curriculum is critical to the success of Career-Technical Education.

The changes occurring in today's workplace demand that the curriculum be constantly updated. Likewise, the equipment used in the classroom and laboratories of the Career-Technical Education programs must be regularly updated and revised. This publication provides educators with a guide for equipping Career-Technical Education programs with the best learning environment for students. It is intended that this guide be used as a resource for improving Career-Technical Education programs.



Howard N. Lee, Chairman
State Board of Education



Michael E. Ward, Superintendent
Department of Public Instruction

TABLE OF CONTENTS

Introduction.....	1
General Equipment Needs in Career-Technical Education	2
Agricultural Education.....	3
Business and Information Technology Education	22
Career Development	27
Family and Consumer Sciences Education.....	33
Health Occupations Education.....	46
Marketing Education.....	52
Technology Education	55
Trade and Industrial Education.....	70

EQUIPMENT GUIDE

INTRODUCTION

PURPOSE OF GUIDE

All Career-Technical Education classrooms require equipment. This handbook's equipment standards have been prepared to assist local educational agencies in:

1. Assessing the adequacy of their Career-Technical Education equipment,
2. Identifying and planning for equipment purchases to meet the minimum requirements, and
3. Determining the feasibility of offering a new Career-Technical Education course sequence.

An equipment definition is found in the **Fiscal and Policy Guide, A Guide for Administering Career-Technical Education, 2003**.

“An equipment item is a material unit which meets ALL of the following conditions:

1. It is non-expendable, that is, if the article is damaged or some of its parts are lost or worn out, it is usually more feasible to repair it rather than replace it with an entirely new unit (which is not true of supplies)
2. It has a useful life of more than one year
3. It represents an acquisition cost of \$5,000 or more per unit unless LEA requirement stipulate a different amount.”

This definition was used as a guide to develop the standards in this guide; however, local school systems have definitions for equipment that include some expendable items as well as items that cost less money. Therefore, more items are listed in the handbook than the definition covers.

The guide includes two lists: 1. Equipment costing over \$100, 2. Tools and other items under \$100. Consumable materials or instructional supplies are not included; however, they may be found in specific curriculum materials.

Article 10 of the Public School Laws of North Carolina, Vocational and Technical Education Programs 115C-154(9) specifies that the State Board of Education shall establish appropriate minimum standards for vocational and technical education programs, services, and activities. The purpose is to ensure that all programs conducted by local school administrative units be of high quality, relevant to student needs, and coordinated with employment opportunities. This handbook has been developed to help meet this requirement.

ORGANIZATION OF GUIDE

The minimum equipment listing is organized by the eight Career-Technical Education program areas. Lists are further divided by facility and course cluster that may be taught in that facility. The quantity is shown by facility, center, or student ratio. Each program area's section is prefaced with points to consider in reviewing the list.

FUNDING ELIGIBILITY

The equipment included in this handbook represents those items needed to meet minimum standards for specific courses. Recommended standards for VoCATS – the Instructional Management System for Career-Technical Education may be obtained from the VoCATS office. Please refer to the **Fiscal and Policy Guide, A Guide for Administering Career-Technical Education, 2003**, for further clarification about eligibility and other guidelines regarding equipment purchases, disposition, rental, and leasing.

ADDITIONAL INFORMATION

For further information or clarification about any program area listing, please contact the program area consultants at this address:

Career-Technical Education
NC Education Building
6341 Mail Service Center
Raleigh, NC 27699-6341
E-mail: www.dpi.state.nc.us/workforce_development

GENERAL EQUIPMENT NEEDS CAREER-TECHNICAL EDUCATION

The following instructional technology equipment should reside in, or be easily accessible to, Career-Technical Education classrooms:

- Audio cassette recorder
- Calculator
- Camcorder (digital preferred)
- Camera, digital
- Camera, web
- Copier
- Digital projector
- DVD+/- R/RW
- DVD Player
- FAX machine
- Microphone, web
- Overhead projector
- Scanner
- Screen
- TV
- USB Flash Drive
- VCR/DVD

All teachers should have easy access to the telephone, e-mail, and the Internet, preferably in the classroom or teacher's office. These general equipment items, as well as the provision of normal classroom furniture/equipment (teacher-desks and chairs, student desks, air conditioners, etc.), are the full responsibility of the local education agency (LEA). The LEA is also responsible for the enhancement of facilities as well as the purchase and installation of items that are attached to the facility in a permanent way (ex: kitchen cabinets, cooling and/or heating systems, sinks, etc.). In addition, classrooms are expected to meet local and state safety standards.

Career-Technical Education funds may be used to provide specialized equipment and laboratory furniture required to operate the programs in the Standard Course of Study. Please note, therefore, that every equipment item identified in this document must be viewed accordingly. Some are eligible to be purchased with Career-Technical Education funds, and some are the responsibility of the local education agency.

Computer/Printer Purchasing

Career-Technical Education programs may choose to use the following minimum specifications when purchasing computer hardware. It is important to review current market standards. Check state contracts at this address: <http://www.its.state.nc.us/ITProcurement/TermContracts/TContracts.asp>. The specifications listed were appropriate at the time of printing this equipment document.

Multi-media Computer with Network capability

- Pentium 4, 2.8 GHz. (minimum)
- 512 MB RAM (minimum)
- 40 GB hard drive
- CD-RW (minimum)
- DVD-Rom
- 3.5" Floppy disk drive
- 10/100 Ethernet
- Sound card
- Graphics card
 - 17" LCD Monitor

Printers

Laser Printer:

- 1200 x 1200 dpi
- 35ppm (or higher)
- Network capability

Color Inkjet Printer

AGRICULTURAL EDUCATION

The Agricultural Education program is designed to develop technical, leadership and management expertise needed by middle and high school students preparing for careers in agricultural occupations and to further education in an agriculturally related field. The new and revised agricultural education courses, as reflected in the **NC Standard Course of Study Guide, 2002** offer the competencies and objectives necessary to prepare and support individuals for careers, build awareness and develop leadership for food, fiber and environmental systems. A list of minimum equipment needs to conduct effective instruction in each of these courses is provided. The Career-Technical Education Facilities Planner provides direction for planning new facilities in agricultural education and other program areas. The organization of this equipment guide is based on the facilities and the courses for agricultural education as follows:

1. Agriscience Applications
2. Agricultural Advanced Studies
3. Agricultural Mechanics
4. Agricultural Production
5. Animal Science
6. Biotechnology
7. Environmental and Natural Resources
8. Horticulture

It is emphasized that these lists contain minimum requirements for equipment only. A complete list is in each curriculum guide.

These lists can be used to access the equipment needs of local agricultural education programs and to identify needed equipment items. If a new program is being planned, these lists may serve as guidelines for the initial purchase of equipment.

Additional information about equipment needs for agricultural education courses can be secured from the Department of Agricultural and Extension Education at North Carolina State University and from the Career-Technical Education, Division of Instructional Services in the North Carolina Department of Public Instruction.

**Agricultural Education
Agriscience Applications Facility
Equipment List**

Courses taught within this facility: Agriscience Applications Code: 6810

Equipment	Recommended Quantity
Air filtration system for woodworking & small engines shop, 1 phase, 1 H.P.	1F
Air pollution sampling pump (battery powered)	1F
Aquarium – self-contained, 50 gal. with air pump	1F
Auto clave – 80 or more cubic inch capacity	1F
Balance, electronic 400 g. capacity	2F
Binoculars (10x) portable	10F
Bolt and nail bin (rotating) at least 34” D x 56 11/16” H	1F
Cart, laboratory, non-metal, 200 lb. capacity	1F
Cart, plant mobile with 3 light fixtures and accessories	1F
Centrifuge, Hermle	1F
Chain saw (18” bar)	1F
Clinometer – measure height, slope and vertical angles	2F
Colorimeter, (LaMotte) AC adapter and rechargeable batteries for wide variety of water testing parameters	1F
Compass (graduated 0-360 degree in 2 degree units), hand held	2F
Compressor, air (120 gal. tank capacity with hose and all accessories (1 gal.)	1F
Culture incubator, 30 degree – 65 degree C operational	1F
Dehydrator (adjustable thermostat to 145 degree F)	1F
Drill press (stationary – key chuck 0’ to ½”) with accessories	1F
Electric motor, (various H.P. and phases)	10F
Electrophoresis power supply with chamber	1F
Environmental microbiology kit	1F
Fish culture system	1F
Gasoline engine (3-5 H.P.)	2F
Generator, motor (student model to assemble and disassemble)	10F
Generator, portable, 10 H.P. with accessories	1F
Greenhouse, at least 10’ x 50’ with ventilation system, evaporative cooling system, (adequate heaters, gas or electric with thermostat) (fiberglass or plastic cover)	1F
Hand cultivator – 3 prong	10F
Hoist, shop (3 ton or larger) electric	1F
Humidifier (10,000 cubic feet capacity with humidistat) for greenhouse	1F
Hydrometer, for salinity measurements	1F
Ignition analyzer (test solid state and transistor)	1F
Increment borer (10” hardened steel bit)	2F
Incubator, poultry (64 chick)	1F

Agricultural Education, Agriscience Applications, continued

Equipment	Recommended Quantity
Insect cabinet (drawers with pinning trays)	1F
Irrigation system (for greenhouse to include mist system, time controls, nozzles, solenoid and pipe accessories)	1F
Laminar low cabinet (may replace with culture cabinet)	1F
Lawn mover – 22” cut, push type	1F
Leaf area meter (battery powered)	1F
Microscope, binocular	1F
Microscope, monocular, a4x, 10x, 40x, 100k	10F
Microscope, stereomicroscope	1F
Microwave, current technology	1F
PH meter, water	1F
Pipe threader with dies	1F
Portable circular saw (7 ¼”) with rip, combination, and crosscut saw blades	1F
Root view growth chamber – plastic (20 ¾” L x 17” H x 2” D)	1F
Shade cover – minimum of 29’ x 5”	1F
Small engine dynamometer (self-contained)	1F
Small engine test stand	10F
Soil auger (bucket, stainless 4” diameter)	1F
Spectrophotometer	1F
Standard plant press with standard driers	1F
Station, 4 student laboratory with accessories including valves, sinks and lamps	5F
Step ladder, aluminum or fiberglass 10’	1F
Stove/oven (gas or electric) for food processing	1F
Tachometer/dwell meter (small engine)	1F
Tank, artificial insemination	1F
Tank, used oil storage (33 gal. or 55 gal.)	2F
Tap and die set (metric)	1F
Tap and die set (SAE)	1F
Technology tool locker, wood, with upper and lower cabinets 60” W x 2” D x 84” H	1F
Tissue culture incubator/cabinet	1F
Trailer, 4’ x 8’ (dump)	1F
Trainer, electronics/electrical	1F
Trainer, small engine	2F
Tree marking gun (1 quart)	1F
Vibration tachometer (small engine)	1F
Vise, chain pipe (5” capacity)	1F
Vise, drill press	1F
Vise, machinist (swivel or fixed with at least 6 ½” jaw opening)	2F
Vise, pipe (2” capacity)	1F
Vises, wood working 7”	20F
Washer, pressure (portable 3,500 PSI)	1F
Weather station with instrumental shelter	1F
Wheel barrow, (6 cubic feet capacity)	1F

Quantities are listed per: F=Facility C=Center S=Student

Agricultural Education, Agriscience Applications, continued

Tools and Other Items Under \$100.00

Equipment	Recommended Quantity
Air tank, portable (11 gal.)	1F
Altimeter with rangefinder, English and metric target	2F
Bench grinder (with flexible lamp) 5/8" shaft with accessories (7" and 10")	1F
Blade balancer	2F
Blender, food (electric)	1F
Bunsen burner	5F
Caliper, inside, up to 6'	2F
Caliper, outside, up 6"	2F
Caliper, tree (measures up to 40")	5F
Calipers, dial 6" capacity with .991 graduations for shop and laboratory measurements	2F
Castrator, emasculatome for lambs, calves bulls and horses	1F
Compression tester	1F
Condenser and coil test (small engine)	1F
Cylinder hone (for small engines), Range up to 3 1/2" with replacement stones	2F
Drawing board, hard wood frame 18" x 24" and cover	1F
Elastrator, 12 oz. weight or heavier	1F
Emery dresser – 1 1/4 diameter	1F
File, round (2 nd cut: 8", 10", 12")	2F
File card and brush	4F
File handles (hardwood)	10F
File set, mill (2 nd cut: 8", 10", 12")	2F
File, half round (2 nd cut: 8", 10", 12")	4F
Flaring tool (general)	1F
Ground water simulation	1F
Hot plate (65 degree C to 510 degree C)	1F
Oxygen meter – to read oxygen levels to 15 ppm in water	1F
Pipette, pumps (2 to 25 ml capacity)	5F
Piston ridge reamer (range 2" to 3")	2F
Portable electric drill (1/2")	2F
Portable electric drill (3/8")	5F
Portable grinder (5" and 8") with guard	1F
Purifier, tap water for aquarium	1F
Rewind starter rope installation holding tool for small engine	1F
Ring stand, cast iron (lab) with support ring and clamp	5F
Rivet tool (convertible nose piece)	1F
T-Square (drafting)	5F

Quantities are listed per: F=Facility C=Center S=Student

**Agricultural Education
Agricultural Advanced Studies
Equipment List**

Courses taught within this facility: Agricultural Advanced Studies Code: 6899

Equipment	Recommended Quantity
Computer (see specifications)	1:4S
Printer (see specifications)	2F

Quantities are listed per: F=Facility C=Center S=Student

**Agricultural Education
Agricultural Mechanics Facility
Equipment List**

Courses taught within this facility:

Agricultural Mechanics I	Code: 6831
Agricultural Mechanics II	Code: 6832
Agricultural Mechanics II – Small Engines	Code: 6833

Equipment	Recommended Quantity
Agricultural Satellite Information System (ASIS)	1F
Air filtration system for woodworking & small engines shop, 1 phase, 1 H.P.	1F
Bench, arc welding with windows	10F
Bench, gas welding	10F
Bender, conduit	2F
Bolt and nail bin (rotating) at least 34" D x 65 11/16" H	1F
Cabinet, flammable storage (at least 64" x 34" x 34")	1F
Cabinet, hazardous chemicals, size at least 65" x 43" x 18"	1F
Camera, digital	1F
Cart, lab, non-metal, 200 lb. capacity	1F
Compressor, air (120 gal. tank)	1F
Digger, power (portable)	1F
Emery dresser – 1 1/4" diameter	1F
Engine stand	5F
Engines – diesel and gasoline	5F
Eye wash station, barrier free	1F
Gas welding outfit	10F
Measuring wheel, measures to 9,999 ft.	1F
Mixer, cement (small engine powered)	1F
Lawn mower – 22" cut, push type	1F
Respirator, dual element and filters for dust, mist, acid gas, spray paint, organic vapor and pesticides	20F
Router, portable	2F
Sander, stationary belt and disc, 6" width	1F
Saw, chain (18 inch bar)	1F
Saw, horizontal band (blade size: 3/4" x 116 15/16)	1F
Saw, horizontal metal cutting	1F
Saw, radial arm (14 inch)	1F
Saw, scroll, stationary	1F
Saw, table (10 inch tilting arbor)	1F
Spill pallet	1F
Step ladder, aluminum or fiberglass 10'	1F
Trailer, 4' x 8' (dump)	1F
Truck, cylinder for gas welder	10F

Quantities are listed per: F=Facility C=Center S=Student

Agricultural Education, Agricultural Mechanics, continued

Equipment	Recommended Quantity
Truck, hand, load capacity at least 500 lbs	1F
Vacuum cleaner, shop 2.5 H.P.	1F
Vise, chain pipe (5" capacity)	1F
Vise, drill press	1F
Vise, machinist (swivel or fixed with at least 6 1/2" jaw opening)	2F
Vise, pipe (2" capacity)	1F
Vise, wood working, 7"	20F
Washer, pressure	1F
Welder	10F
Welder, MIG unit (complete)	1F
Welder, TIG unit (complete)	1F
Welder, plasma arc cutting and welding unit (complete)	1F

Tools and Other Items Under \$100.00

Equipment	Recommended Quantity
Blanket, fine	1F
Bolt cutters 24"	1F
Cabinet, ultraviolet sanitizing safety glasses, to hold 40 safety glasses	1F
Face shield, wrap-around	20F
Faucet, drum, self-closing safety	2F
Flaring tool (general)	1F
Float, bull	2F
Float, concrete	2F
Glasses, safety	20F
Goggles, standard flexible	20F
Goggles, welding	20F
Hard hats, meets ANSI Class B standards	20F
Hand truck – 250 lb.	1F
Hearing protector, 21 decibel noise reduction rating	20F
Helmet, welding	25F
Mercury collector	10F
Micrometer, inside (set) shop and lab	1F
Micrometer, outside (set) shop and lab	1F
Respirator, dual element and filters for dust, mist, acid gas, spray paint, organic vapors and pesticides	1F
Rope (100' x 3/4")	1F
Saw, jig (with blades)	1F
Saw, miter	1F
Saw, portable circular (7 1/4") with rip, combination, and crosscut saw blades	2F
Spill pallet for holding 5, 30 or 55 gallon drums	1F
Stop watch	5F
Straight shank drill bit set (at least 100 bits included)	2F
Wheel barrow, (6 cubic feet capacity)	1F

Quantities are listed per: F=Facility C=Center S=Student

Agricultural Education, Agricultural Production, continued

Tools and Other Items Under \$100.00

Equipment	Recommended Quantity
Auger, soil (bucket)	1F
Barrow, wheel	1F
Chain, log ¼" x 14"	1F
Charger, battery	1F
Clamps, bar 2', 4', 6', 8' (set)	5F
Clamps, C-2 ½", 3", 4", 6", 8" (set)	5F
Clinometer	1F
Cutter, bolt	3F
Digger, post hole	3F
Drill, electric portable variable speed (1/4", 3/8", and ½")	6F
Dynamometer, small engine	1F
Fan, ventilation (for animals)	1F
Filtration system, air (for wood working & small engines)	1F
Generator, electric	1F
GPS (hand held unit)	1F
Grinder, bench 6"	1F
Grinder, bench 10"	1F
Hoist, chain 1 ½ ton	1F
Incubator	1F
Jack, hydraulic 1 ½ ton	1F
Jointer, 6" or 8"	1F
Level, transit (tripod and level rod)	1F
Mixer, cement	1F
Pan, mortar	1F
Planer	1F
Press, drill	1F
Sander, 6" belt 12" disc finishing machine	4F
Saw, panel	1F
Saw, portable electric, circular	1F
Saw, reciprocating (portable)	1F
Saw, saber portable electric	5F
Saw, stationary scroll	1F
Saw, 10" to 12" tilting arbor	1F
Scale, heavy duty	1F
Scan-o-probe	1F
Shoot, grooming	1F
Stand, jack	6F
Stand, small engine	5F
Tank, oil (for used oil)	1F
Tap and die set, N.F. & N.C. - set ¼" to 1"	1F
Tester, hydraulic system	1F
Truck, hand	1F

Quantities are listed per: F=Facility C=Center S=Student

Agricultural Education, Agricultural Production, continued

Equipment	Recommended Quantity
Vise, drill press 6" Opening	1F
Vise, hinged pipe	1F
Vise, machinist 4 1/2" – 6"	1F
Vise, woodworking 6" – 8"	5F
Wrench, impact (with sockets and accessories)	1F

Quantities are listed per: F=Facility C=Center S=Student

Agricultural Education Animal Science Facility Equipment List

Courses taught within this facility:	Animal Science I	Code: 6821
	Animal Science II	Code: 6822
	Animal Science II – Small Animal	Code: 6823
	Equine Science I	Code: 6825
	Equine Science II	Code: 6826

Equipment	Recommended Quantity
Air filtration system for woodworking and small engines, 1 phase, 1H.P. (1)	1F
Aquarium – self-contained, 50 gallon	1F
Artificial insemination kit for horses, swine, and cattle	1F
Autoclave – 800 or more cubic inch capacity	1F
Balance, electronic (400 g. capacity)	1F
Bench, arc welding with windows	1F
Bench, work, 4 station, wood top, for shop	5F
Blanket, fire	1F
Bolt and nail bin (rotating) at least 34” D x 65 11/16” H	1F
Branding iron, freeze, made of copper alloy (0-9)	1F
Branding iron, heater	1F
Branding iron, heavy duty copper (0-9)	1F
Brooder, poultry for baby birds or chicks	1F
Burner, Bunsen	5F
Cabinet, flammable storage (at least 64” x 34” x 34”)	1F
Cabinet, hazardous chemicals, size at least 65” x 43” x 18”	1F
Cabinet, Laminar flow (may replace with culture cabinet)	1F
Cart, lab, non-metal, 200 lb. capacity	1F
C-clamp (set includes maximum opening 3”, 4”, 5”, 6” and 8”)	1F
Colorimeter, (LaMotte) AC adapter and rechargeable batteries for wise variety of water testing parameters	1F
Compressor, air (120 gal. tank capacity with hose and all accessories)	1F
Computer (see specifications)	1F
Culture incubator, 15 degree – 40 degree C, operational	1F
Cylinder, truck for gas welder	1F
Electrophoresis power supply with chamber	1F
Eye wash station, barrier free	1F
Feed/cement mixer gasoline powered	1F
Fish culture system – recirculation to hold up to 200 lbs. of fish (include galvanized steel tanks, vinyl liner, air pump, molded clarifier, PVC water lines, rotating filter and accessories)	1F
Flash light, 6 volt lantern	1F
Gas welding outfit (cutting attachment, regulators, cutting tip, tip cleaners, torch lighter, 20’ Neoprene hose with connections, welding torch handle with mixer, two stage regulator)	1F

Agricultural Education, Animal Science continued

Equipment	Recommended Quantity
Generator, portable, 10 H.P. with accessories	1F
Grinder, bench (with flexible lamp) 5/8" shaft with accessories (7" and 10")	1F
Heater, animal lamp (500 watts)	5F
Hydrometer, for salinity measurements	1F
Implements, tractor 3-point hitch and or PTO driven for preparing and maintaining a pasture lab	1F
Incubator, emu/ostrich (20 ostrich egg capacity)	1F
Incubator, poultry (64 chick)	1F
Micro centrifuge	1F
Microscope, binocular	1F
Microscope, monocular, 4x, 10x, 40x, 100x	10F
Microscope, stereomicroscope	1F
Pipettor, with plastic tips (1, 20, 200, 1000 micro liters)	1F
Printer	1F
Scale, heavy duty (3,000 lb. capacity)	1F
Scale, hog and sheep (weighs up to 400 lbs.)	1F
Scale, spring dial 1,000 g. capacity	1F
Scale, triple beam balance 2,510 g. capacity	1F
Scan probe, pig pregnancy and computerized back fat probe	1F
Step ladder, aluminum or fiberglass 10'	1F
Stethoscope	1F
Stove/over (gas or electric)	1F
Tank, air, portable (11 gal.)	1F
Tank, artificial insemination	1F
Tractor, diesel powered, current technology (3 cylinder)	1F
Trailer, 4' x 8' (dump)	1F
Trailer, large animals	1F
Truck, hand, load capacity at least 500 lbs.	1F
Vacuum cleaner, for shop 2.5 H.P. with accessories	1F
Vacuum pump for lab	1F
Vise, machinist (swivel or fixed with at least 6 1/2" jaw opening)	1F
Vise, woodworking, 7"	20F
Washer, pressure (portable 3,500 PSI)	1F
Welder, arc electric 225/125 AC/CD stick with electrode holder and ground clamp	1F

Quantities are listed per: F=Facility C=Center S=Student

Agricultural Education, Animal Science, continued

Tools and Other Items Under \$100.00

Equipment	Recommended Quantity
Calf puller with steel ratchet wrench handle	1F
Calf restraint (maximum 145 lbs.)	1F
Castrator, emasculatome for lambs, calves, bulls and horses	1F
Catcher, hog (35" long)	1F
Charger, electric fence (15 mile capacity)	1F
Chuck key set (5/32" to 5/15")	1F
Clamp, bar (quick grip – set includes 12", 18" and 24" length)	1F
Clamp, test tube	5F
Clamp, vise-grip welding	1F
Dehorner (electric and manual)	1F
Docker, tail for small animals	1F
Dryer, animal with accessories	1F
Ear punch, animal I.D.	1F
Egg candler with 6-watt bulb	1F
Elastrator, 12 oz. weight or heavier	1F
Extinguishers, fire (dry chemical for class A, B, C and multi-fires)	5F
Elastrator, 12 oz. weight or heavier	1F
Face shield, wrap-around	20F
Faucet, drum, self-closing safety	2F
Feeder, piglet (stainless steel)	2F
Funnel, drum with 6" flame arrester	2F
Glasses, safety	20F
Goggles, welding	5F
Hard hats, meets ANSI Class B standards	20F
Hearing protector, 21 decibel noise reduction rating	20F
Helmet, welding	5F
Holder, animal for castration up to 70 lbs.	1F
Hot plate with stirring capacity (65 degree C to 510 degree C)	1F
Scale, architect's, triangular 12"	1F
Scale, small animal (weighs up to 150 lbs.)	1F
Vacuum pump for lab	1F
Wheel barrow, (6 cubic feet capacity)	1F
Whip, horse stock (50" shaft)	1F
Wrecking bar (3/4" x 35")	2F

**Agricultural Education
Biotechnology
Equipment List**

Courses taught within the facility: Biotechnology and Agricultural Research I & II (BAR)
Code: 6871/6872
Exploring Biotechnology (EB) Code: 6828

Equipment	EB	BAR
Autoclave		1F
Balance		1F
Cell counters		1F
Centrifuges		1F
Computer (see specifications)	1:4S	1:4S
Dessicator		1F
Electrophoresis equipment		1F
Exhaust hoods		1F
Heating block		1F
Holding tanks		1F
Hot plates		1F
Incubator	2F	2F
Laminar flowhood		1F
Microscope	1:2S	1:2S
Monocular microscope	2F	2F
Nitrogen storage tanks		1F
Ovens and dryers		1F
Plate reader		1F
Pumps		1F
Refrigerators, freezers		1F
Stereoscopes		1F
Water baths		1F

Tools and Other Items Under \$100.00

Equipment	EB	BAR
Assorted clamps		1F
Assorted cleaning chemicals		1F
Beakers	4 dozen F	4 dozen F
Biohazard container	2F	2F
Cages and related equipment		1F
Calculators		1F
Flask	4 dozen F	4 dozen F
Funnel	2 dozen F	2 dozen F
Forceps	1:2S	1:2S
Graduated cylinder	2 dozen F	2 dozen F
Hot water bath	1:2S	1:2S
Hot plate	1:2S	1:2S

Agricultural Education, Biotechnology, continued

Equipment	EB	BAR
Medicine Dropper	4 dozen F	4 dozen F
Petri dish	4 dozen F	4 dozen F
pH meter		1F
Pipette	4 dozen F	4 dozen F
Pipette pump	4 dozen F	4 dozen F
Pressure gauges		1F
Safety Glasses	1:1S	1:1S
Scalpels	1:2S	1:2S
Scoopers		1F
Shakers/mixers		1F
Shields		1F
Stirring Rods	4 dozen F	4 dozen F
Test tubes	4 dozen F	4 dozen F
Test tube racks	1:2S	1:2S
Thermometer	1:2S	1:2S
Timers		1F

**Agricultural Education
Environmental and Natural Resources Facility
Equipment List**

Courses taught within this facility: Environmental and Natural Resources I & II
Code: 6851/6852

Equipment	Recommended Quantity
Air pollution sampling pump (battery powered)	1F
Air tank, portable (11 gal.)	1F
Aquarium – self-contained, 50 gal.	1F
Auto clave – 80 or more cubic inch capacity	1F
Balance, electronic 400 g. capacity	2F
Bench, propagation (3' x 10' x 5" deep)	1F
Benches, wood slat (at least 30" x 8')	16F
Bolt and nail bin (rotating) at least 34" D x 65 11/16" H	1F
Bush axe – 16" blade with wood handle	2F
C-clamp (set includes maximum opening 3", 4", 5", 6" and 8")	1F
Cart, laboratory, non-metal, 200 lb. capacity	1F
Centrifuge, Hermle	1F
Chain saw (18" bar)	1F
Clinometer – measure height, slope and vertical angles	2F
Colorimeter	1F
Compass (graduated 0-360 degree in 2 degree units) hand held	2F
Compass, forester (golding sights) with accessories	1F
Compressor, air (120 gal. tank capacity with hose and all accessories)	1F
Condenser and coil tester (small engine)	1F
Culture incubator, 30 degree – 65 degree C operational	1F
Dehydrator (adjustable thermostat to 145 degree F)	1F
Electrophoresis power supply with chamber	1F
Fish culture system	1F
Greenhouse, at least 20' x 50' with ventilation system, evaporative cooling system, (adequate heaters, gas or electric with thermostat) (fiberglass or plastic cover)	1F
Humidifier (10, 000 cubic feet capacity with humidistat) for greenhouse	1F
Hydrometer, for salinity measurements	1F
Increment borer (10" hardened steel bit)	2F
Insect cabinet (drawers with pinning trays)	1F
Irrigation system for greenhouse	1F
Laminar flow cabinet (may replace with culture cabinet)	1F
Lawn mower – 22" cut, push type	1F
Leaf area meter (battery powered)	1F
Measuring wheel, measures to 9, 999 feet	1F
Microscope, monocular, a4x, 10x, 40x, 100k	10F
Microscope, stereomicroscope	1F

Quantities are listed per: F=Facility C=Center S=Student

Agricultural Education, Environmental and Natural Resources continued

Equipment	Recommended Quantity
Microwave, current technology	1F
PH meter, water	1F
Pipe threader with dies	1F
Pipette, pumps (2 to 25 ml capacity)	5F
Portable circular saw (7 ¼") with rip, combination, and crosscut saw blades	1F
Refrigerator, 21 cubic ft. minimum	1F
Soil auger (bucket, stainless 4" diameter)	1F
Spectrophotometer	1F
Standard plant press with standard driers	1F
Stove/oven (gas or electric) for food processing	1F
Tank, used oil storage (33 or 55 gal.)	2F
Tap and die set (metric)	1F
Tap and die set (SAE)	1F
Tissue culture incubator/cabinet	1F
Torch, propane/MAPP	1F
Trailer, 4' x 8' (dump)	1F
Vacuum cleaner, shop and laboratory 2.5 H.P. with accessories	1F
Vise, chain pipe (5" capacity)	1F
Vise, drill press	1F
Vise, machinist (swivel or fixed with at least 6 ½" jaw opening)	2F
Vise, pipe (2" capacity)	1F
Vises, wood working, 7"	20F
Washer, pressure (portable 3,500 PSI)	1F

Tools and Other Items Under \$100.00

Equipment	Recommended Quantity
Air population test set	1F
Bench grinder 5/8" shaft with accessories (7" and 10")	1F
Binoculars (10x) portable	10F
Blade balancer	2F
Bunsen burner	5F
Circuit tester (for both AC & DC current)	1F
Compass (set) (drawing)	1F
Crucible tongs	5F
Cylinder hone (for small engines), Range up to 3 ½" with replacement stones	2F
Oxygen meter – to read oxygen levels to 15 ppm in water	1F
Rewind starter rope installation holding tool for small engine	1F
Ring stand, cast iron (lab) with support ring and clamp	5F
Soil moisture meter	1F
Soil thermometer (0-180 degree F)	2F
Soil tube sampler, stainless (7/8" diameter probe)	1F
Soil, screw auger (1 ½" diameter, stainless)	1F
Torch, propane/MAPP	1F
Wheel barrow, (6 cubic feet capacity)	1F

Quantities are listed per: F=Facility C=Center S=Student

Agricultural Education Horticulture Facility Equipment List

Courses taught within this facility:	Horticulture I	Code: 6841
	Horticulture II	Code: 6842
	Horticulture II – Turf Grass	Code: 6843
	Horticulture II – Landscape Construction	Code: 6882

Equipment	Recommended Quantity
Air filtration system for wood working & small engines shop 1 phase, 1 H.P.	1F
Air pollution sampling pump (battery powered)	1F
Attachment, mower, tractor, PTO powered, at least 48" wide	1F
Auger, soil (bucket, stainless 4" diameter)	1F
Auger, soil screw (1 ½" diameter, stainless)	1F
Bench, arc welding with windows	1F
Bench, gas welding	1F
Bench, propagation (3' x 10' x 5" deep)	1F
Bolt and nail bin (rotating) at least 34" D x 65 11/16" H	1F
Borer, increment (10? hardened steel bit)	2F
Cabinet, flammable storage (at least 64" x 34" x 34")	1F
Cabinet, tissue culture incubator/cabinet	1F
Cart, lab, non-metal, 200 lb. capacity	1F
Cleaner, parts (two level 40 to 55 gal. capacity)	1F
Clinometer – measure height, slope and vertical angles	2F
Compass (graduated 0-360 degree in 2 degree units), hand held	2F
Compass, forester (folding sights) with accessories	2F
Compressor, air (120 gal.)	1F
Computer (see specifications)	1:4S
Cover, shade – minimum of 29' x 54'	1F
Cultivator, hand – 3 prong	10F
Drill press (stationary – key chuck 0' to ½") with accessories	1F
Electrophoresis power supply with chamber	1F
Gas welding outfit	1F
Generator, portable, 10 H.P. with accessories	1F
Greenhouse, at least 20' x 50' with ventilation system	1F
Grinder, bench (with flexible lamp) 5/8" shaft with accessories	1F
Ground water simulation	1F
Implements, tractor 3-point hitch and/or PTO driven	1F
Jack, hydraulic (5 ton)	1F
Lawn mower – 22" cut, push type	1F
Measuring wheel, measures to 9,999 ft.	1F

Agriculture Education, Horticulture, continued

Equipment	Recommended Quantity
Microscope, binocular	1F
Microscope, monocular, 4x, 10x, 40x, 100x	10F
Microscope, stereomicroscope	10F
Refrigerator, with freezer, 21 cubic feet minimum	1F
Seeder, garden hand (corrosion resistant)	1F
Step ladder extension, aluminum or fiberglass 25'	1F
Straight shank drill bit set (at least 100 bits included)	2F
Tiller, garden, 5 H.P. minimum	1F
Tractor, diesel powered (current technology, 3 cylinder)	1F
Trailer, 4' x 8' (dump)	1F
Vacuum cleaner, for shop, 2.5 H.P. with accessories	1F
Vise, chain pipe (5" capacity)	1F
Vise, machinist	1F
Vise, pipe (2" capacity)	1F
Vise, wood working, 7"	20F
Washer, pressure (portable 3,500 PSI)	1F
Welder, arc, electric 225/125 AC/DC	1F

Tools and Other Items Under \$100.00

Equipment	Recommended Quantity
Air pollution test set	1F
Auger, tree feeding – drills 2" holes	1F
Blanket, fire	1F
Booster cables, battery (500 Amp capacity)	1F
Cabinet, insect (drawers and pinning trays)	1F
Can, safety, type 1 metal, 5 gal.	1F
Can, waste for oily rags – 10 gal. capacity	1F
Cart, plant mobile with 3 light fixtures and accessories	1F
Charger, battery, portable (750 cranking amps)	1F
Extinguishers, fire (dry chemical for class A, B, C and multi-fires)	5F
Face shield, wrap-around	20F
Faucet, drum, self-closing safety	2F
Filler, battery (holds 2 quarts)	1F
First aid kit for 100 people	1F
Funnel, drum with 6" flame arrester	2F
Goggles, standard flexible	20F
Hard hats, meets ANSI Class B standards	20F
Helmet, welding	5F
Hot plate with stirring capacity (65 degree C to 510 degree C)	1F
Hydrometer, for salinity measurements	1F
Mercury collector	1F
Plant propagation mat	2F
Respirator, dual element and filters for dust, mist, acid gas, spray paint, organic vapor and pesticides	20F
Spill pallet – holds 2, 33 gal. or 55 gal. drums	1F

Quantities are listed per: F=Facility C=Center S=Student

BUSINESS AND INFORMATION TECHNOLOGY EDUCATION

Business and Information Technology Education is a broad, comprehensive curriculum at the middle and high school levels that provides students with meaningful instruction for and about business. Instruction in Business and Information Technology Education encompasses business skills and techniques, an understanding of basic economics, and business attitudes essential to participate in the multinational marketplace as productive workers and consumers.

Business and Information Technology Education is designed to prepare graduates as viable competitors in the business world and for advanced educational opportunities. The instructional program begins in the middle grades with the development of proficiency in operating a computer keyboard using the touch system and using basic computer software applications. Exploratory experiences in business technologies are also included in the middle school curriculum. This experience continues at the high school level with a scope and sequence of varied course offerings for students in grades 9-12. Students may enter the program and progress through the curriculum in one of six career majors:

- Accounting and Finance
- Administrative & Information Support
- Business Management and Administration
- Information Technology – Database Development and Administration
- Information Technology – Network Administration
- Information Technology – Programming and Software Engineering
- Small Business Management and Entrepreneurship

Individual Business and Information Technology Education courses are described in the **NC Standard Course of Study Guide, 2002**. Equipment needs for the following Business and Information Technology Education facilities are included in this publication:

1. Middle School Business Technologies Facility
2. Comprehensive High School Facility for Business and Information Technology Education
3. Technology Intensive Laboratory for Business and Information Technology Education

It is emphasized that these lists contain minimum requirements for equipment only. There is no listing for supplies and materials that would be purchased on an annual basis. These lists serve as a guideline for planning new programs as well as providing for existing programs. It is critical that facilities be properly equipped to ensure that students can achieve the required competencies and objectives for each course. In addition, Business and Information Technology programs should also be equipped with general items described in the introduction of this publication.

Further information about equipment needs for Business and Information Technology Education courses can be secured from Career-Technical Education, Division of Instructional Services in the Department of Public Instruction.

**Business and Information Technology Education
Middle School Facility
Equipment List**

Courses taught within the facility:

Business Computer Technology	Code: 6400
Exploring Business Technologies	Code: 6208
Keyboarding	Code: 6511

Equipment	Recommended Quantity
Color inkjet printer	1CL
Current Software: Word Processing, Spreadsheet, Database, and Presentation	1:1S
Eight-foot conference table	1CL
Ergonomic adjustable-height rolling chairs for students	1:1S
Ergonomic student computer desks	1:1S
Internet connection with e-mail capability	1:1S
Multi-media computer with network capability, Pentium 4, 2.8 GHz (minimum), 512 MB RAM (minimum), 40 GB Hard Drive, CD-RW (minimum), DVD-Rom, 10/100 Ethernet, sound card, and 17" LCD Monitor.	1:1S
Multi-media teacher station: printer, multi-media computer, digital camera, camcorder, TV/VCR, digital projector, interactive whiteboard	1CL
Laser printer, 1200 x 1200 dpi, 35ppm, network capability	1F
Printer Stand	2F
Scanner	1CL

**Business and Information Technology Education
Comprehensive High School Facility
Equipment List**

Courses taught within the facility:

Business Advanced Studies	Code: 6599
Business Law	Code: 6215
Business Management and Applications	Code: 6225
Principles of Business and Personal Finance	Code: 6200
Small Business Entrepreneurship	Code: 6235

Equipment	Recommended Quantity
Color inkjet printer	1CL
Current Software: Word Processing, Spreadsheet, Database, and Presentation	1:2S
Eight-foot conference table	1CL
Ergonomic adjustable-height rolling chairs for students	1:1S
Ergonomic student computer desks	1:1S
Internet connection with e-mail capability	1:2S
Multi-media computer with network capability, Pentium 4, 2.8 GHz (minimum), 512 MB RAM (minimum), 40 GB Hard Drive, CD-RW (minimum), DVD-Rom, 10/100 Ethernet, sound card, and 17" LCD Monitor.	1:2S
Multi-media teacher station: printer, multi-media computer, digital camera, camcorder, TV/VCR, digital projector, interactive whiteboard	1CL
Laser printer, 1200 x 1200 dpi, 35ppm, network capability	1F
Printer Stand	2F
Scanner	1F

**Business and Information Technology Education
Technology Intensive Laboratory
Equipment List**

Courses taught within the facility:

Business and Electronic Communications	Code: 6535
Computerized Accounting I	Code: 6311
Computerized Accounting II	Code: 6312
Computer Applications I	Code: 6411
Computer Applications II	Code: 6412
Computer Programming I	Code: 6421
Computer Programming II	Code: 6422
Digital Communications Systems*	Code: 6514
e-Commerce I**	Code: 6415
e-Commerce II**	Code: 6416
Foundations of Information Technology	Code: 6340
Networking I	Code: 6341
Network Administration II – Linux***	Code: 6345
Network Administration II – Novell***	Code: 6346
Network Administration II – Microsoft***	Code: 6347

Equipment	Recommended Quantity
Barcode Scanner (optional)*	1F
Biometric Devices (optional)*	1F
Color printer (Laser Preferred and network capability)	1F
Current Software: Word Processing, Spreadsheet, Database, Speech Recognition and Presentation	1:1S
Digital Camcorder	1F
Digital Camera	1F
Eight-foot conference table	1CL
Ergonomic adjustable-height rolling chairs for students	1:1S
Ergonomic student computer desks	1:1S
Handheld Computers (pocket PCs)*	1:2S
Headset with microphone (dual earpiece and volume control preferred)*	1:2S
Internet access and Intranet email/formal chatting capabilities	1:1S
Laser printer, 1200 x 1200 dpi, 35ppm, network capability	1F

**Business and Information Technology Education, Technology Intensive Laboratory,
continued**

Equipment	Recommended Quantity
Magnetic Scanner (optional)*	1F
Multi-media computer with network capability, Pentium 4, 2.8 GHz (minimum), 512 MB RAM (minimum), 40 GB Hard Drive, CD-RW (minimum), DVD-Rom, 10/100 Ethernet, sound card, and 17" LCD Monitor.	1:1S
Multi-media teacher station: printer, multi-media computer, digital camera, camcorder, TV/VCR, digital projector, interactive whiteboard	1CL
Printer Stand	2F
Probes (scientific devices) (optional)*	1F
Scanner	1CL
Tablet PC and Laptop computer with alternative pointing devices (or convertible)*	1F
Universal Serial Bus (USB) flash drive (PEN Drive) 32 MB minimum	6CL
Web Camera	1:2S
Web cell phone and Global positioning device (or combination) (optional)*	1F
Web editor current software**	1:1S
Web TV (optional)*	1F

* Digital Communication Systems Only

** e-Commerce I & II Only

*** Equipment may vary based on vendor specifications: Linux, Novell, Microsoft

Quantities are listed per: F=Facility C=Center S=Student

CAREER DEVELOPMENT

Career Development has two broad components: instructional courses and career development services. Instruction courses include Exploring Career Decisions, which is taught in middle grades, and Career Management, which is taught at the high school level. Career development services are designed to provide students with information needed to make effective educational and career plans. In order to provide career planning services, ideally, schools equip a career information center.

Career Development courses are described in the **NC Standard Course of Study Guide, 2002**. Facilities that support these courses are illustrated in the **Career-Technical Education Facilities Planner**. Equipment needed for the following Career Development courses are included in this publication.

1. Exploring Career Decisions (Middle Grades)
2. Career Management (High School)

Equipment needed for Career Information Centers is listed separately.

It is emphasized that these lists contain minimum requirements for equipment only. Supplies and materials that would be purchased on an annual basis are not included. These lists serve as a guideline for planning new programs as well as providing for existing programs.

Additional information about equipment needs for Career Development can be secured from the Career Development or the Middle Grades consultant at Career-Technical Education, Division of Instructional Services in the Department of Public Instruction.

**Career Development
Exploring Career Decisions
Equipment List**

Courses taught within the facility: Exploring Career Decisions

Code: 6158

Equipment	Recommended Quantity
Camcorder	1F
Clothes washer	1F
Clothes dryer	1F
Computer cart (mobile)	1F
Computer (see specifications)	6F
Cookware	2F
Electric range	2F
Listening center	1F
Microwave oven	1F
Printer (see specifications)	3F
Serger	1F
Sewing machines	6F
Television	1F
Vacuum cleaner	1F
VCR	1F

Career Development, Exploring Career Decisions, continued

Tools and Other Items Under \$100.00

Equipment	Recommended Quantity
Aquarium	1F
Audio tape recorder	1F
Blender	1F
Broom/dust pan	2F
Calculators	1:3S
Calculator (desk)	1F
Can opener (electric)	2F
Claw hammer	1:2S
Cookie sheet	2C
Cosmetology supply set	1C
Dishes (assorted set)	2F
Drill (electric hand)	1F
Drill bit set	1F
Egg candler	1C
Electric mixer	2F
Eye chart	1C
Fingerprint kit	1C
Flatware (set)	4F
Frying pan	2F
Grinder	1F
Hair dryer	1C

Career Development, Exploring Career Decisions, continued

Equipment	Recommended Quantity
Hand tool set	1F
Handsaw	3F
Machinist vice	1F
Mannequin	1F
Measuring cups (dry set)	4F
Measuring spoons	4F
Measuring cups (liquid)	4F
Microscope	1C
Mixing bowl (set)	4F
Paper cutter	1F
Pitchers	6F
Pot/pan (set)	2F
Rulers	1:1S
Sabre saw	F
Safety goggles	F
Safety goggles cabinet	1F
Sander (electric hand)	2F
Scales (weight)	1F
Scissors	18F
Serving tray	4F
Set dental tools	1C
Shovel	1F
Spade	1F

Quantities are listed per: F=Facility C=Center S=Student

Career Development, Exploring Career Decisions, continued

Equipment	Recommended Quantity
Sphygmomanometer	1C
Staple gun	1F
Steam iron	1F
Stethoscope	2F
T-square	4F
Terrarium	1F
Thermometer (fever)	2C
Thermometer (candy)	2F
Tooth model	1C
Wig stand (head)	1C
Wire stripper	2F
Wood-top work bench	1F
Woodworking vice	1F

Quantities are listed per: F=Facility C=Center S=Student

**Career Development
Career Management Facility
Equipment List**

Courses taught within the facility: Career Management

Code: 6145

Equipment	Recommended Quantity
Computer (see specifications)	6F
Printer (see specifications)	2F
Video/digital camera	1F
VCR/DVD Recorder/player	1F
Digital Projector	1F

FAMILY AND CONSUMER SCIENCES EDUCATION

The Family and Consumer Sciences Education program prepares students for careers working with individuals and families as well as for competence in the work of their own families. Family and Consumer Sciences Education courses are designed to address life management skills and to explore related careers in the middle grades. In high school, students further develop their technical knowledge and skills related to the work of the family and within their chosen careers. Initially, the high school program is primarily consumer-oriented. As students proceed through course sequences, the focus is on preparing students for further education and career development in Family and Consumer Sciences. Local school facilities are to be equipped to reflect this philosophy.

Individual Family and Consumer Sciences Education courses are described in the **NC Standard Course of Study Guide, 2002**. Facilities which support these courses are illustrated in the **Career-Technical Education Facilities Planner**, (<http://www.schoolclearinghouse.org/pubs/facguid/pdf>). Equipment needs for the following Family and Consumer Sciences Education facilities are included in this publication:

1. Apparel and Housing
2. Comprehensive High School
3. Culinary Arts and Hospitality
4. Early Childhood Education
5. Exploring Life Skills
6. Food Science

It is emphasized that these lists contain minimum requirements for equipment only. Supplies and materials that would be purchased on an annual basis are not included. These lists serve as a guideline for planning new programs as well as providing for existing programs. It is critical that facilities be properly equipped to ensure that students can achieve the required competencies and objectives for each course. In addition, Family and Consumer Sciences programs should also be equipped with general items described in the introduction of this publication.

Further information about equipment needs for Family and Consumer Sciences Education courses can be secured from Career-Technical Education, Division of Instructional Services in the Department of Public Instruction.

**Family and Consumer Sciences Education
Apparel and Housing Facility
Equipment List**

Courses taught within the facility: Apparel Development I (AD) Code: 7035
 Apparel Development II Code: 7036
 Housing and Interiors I (HI) Code: 7055
 Housing and Interiors II Code: 7056

Equipment	AD	HI
Blindstitch machine, heavy-duty	1F	1F
Cabinet-storage, portable, small drawers	1F	1F
Camera, Digital	1F	1F
Computer (see specifications)	1:4S	1:4S
Drawing Board	1:1S	
Dryer	1F	
Fabric roll rack	4F	
Iron, commercial	4F	4F
Ironing press	1F	1F
Lockstitch machine, heavy duty	1F	
Microscope	4F	
Mirror, triple full length	1F	
Operator chair or stool		1:1S
Printer (see specifications)	2F	2F
Rotary cutter and mat	2F	2F
Serger	1:4S	2F
Sewing machine, domestic	1:1S	2F
Steamer	1F	1F
Table, cutting, 36" height	1F	1F
Table, pressing, padded	1F	1F

Family and Consumer Sciences Education, Apparel and Housing Facility, continued

Courses taught within the facility: Apparel Development I (AD) Code: 7035
 Apparel Development II Code: 7036
 Housing and Interiors I (HI) Code: 7055
 Housing and Interiors II Code: 7056

Equipment	AD	HI
Tote trays in cabinet	1:1S	1:1S
Vacuum cleaner	1F	1F
Washer	1F	
Window units, framed, double sash		2F
HP Printer for fabric	1F	

Tools and Other Items Under \$100.00

Equipment	AD	HI
Carpentry tool set, basic		2F
Drafting tools, assorted		1:2S
Drawing board		1:1S
Dress form	4F	
Dressmaker cutting tool set	4F	
Garment rack	1F	
Presentation easels	3F	3F
Stepladder	1F	1F

**Family and Consumer Sciences Education
Comprehensive High School Facility
Equipment List**

Courses taught within the facility: FACS Advanced Studies* (AS) Code: 7199
 Foods I – Fundamentals (F) Code: 7045
 Foods II – Advanced (F) Code: 7046
 Life Management* (LM) Code: 7085
 Teen Living (TL) Code: 7015

Equipment	AS	F	LM	TL
Balancing Scales (1-32 oz and 1-25#)		1C		
Bakeware set – 1 metal & 1 glass		1C		1C
Blender		1C		
Computer (see specifications)	1:4S	1:4S	1:4S	1:4S
Cookware set		1C		1C
Cutlery set with cutting board		1C		1C
Dinnerware - set for 4, microwave safe with serving pieces		1C		1C
Dishwasher		1F		
Dryer		1F		1F
Flatware set for 4, including serving pieces		1C		1C
Food processor, heavy duty		1C		2F
Garbage disposal		1F		
Glassware set for 4, including pitcher		1C		1C
Microwave cookware set		1C		1C
Microwave oven		1C		1C
Mixer – Heavy Duty		1C		
Operator chair or stool		1:1S		
Printer (see specifications)	2F	2F	2F	2F
Punch bowl set		1F		

*Courses may be taught in a non-laboratory facility

Family and Consumer Sciences Education, Comprehensive High School Facility, continued

Courses taught within the facility: FACS Advanced Studies* (AS) Code: 7199
 Foods I – Fundamentals (F) Code: 7045
 Foods II – Advanced (F) Code: 7046
 Life Management* (LM) Code: 7085
 Teen Living (TL) Code: 7015

Equipment	AS	F	LM	TL
Range w/ventilated hood		1C		1C
Refrigerator/freezer w/ice maker		2F		2F
Small appliances – common		1C		
Small appliances – specialty		1F		
Utensils for measuring, cutting, mixing, and cooking		1C		
Vacuum cleaner		1F		1F
Washer		1F		1F

*Courses may be taught in a non-laboratory facility

Family and Consumer Sciences Education, Comprehensive High School Facility, continued

Courses taught within the facility: FACS Advanced Studies* (AS) Code: 7199
 Foods I – Fundamentals (F) Code: 7045
 Foods II – Advanced (F) Code: 7046
 Life Management* (LM) Code: 7085
 Teen Living (TL) Code: 7015

Tools and Other Items Under \$100.00

Equipment	AS	F	LM	TL
18" Black light		2F		
2 angel food cake pans w/cooling legs		2F		
2 bundt cake pans		2F		
2 pH meters		2F		
Bimetallic Stemmed Thermometer		2F		1F
Carpentry tool set		2F		1F
Chef Knives		2F		
Glass candy thermometer		2F		1F
Glow germ or Glitter Bug Potion		2F		1F
NSF dishes (serving scoops 4 different sizes per set)		2F		1F
Pastry/decorating bags and couplers		2F		1F
Petri Dishes		2F		1F
Sharpening Steel		2F		
Thermometers for refrigerator/freezer		2F		

*Courses may be taught in a non-laboratory facility

**Family and Consumer Sciences Education
Culinary Arts and Hospitality Facility*
Equipment List**

Courses taught within this facility: Culinary Arts and Hospitality I Code: 7121
Culinary Arts and Hospitality II Code: 7122

Equipment*	Recommended Quantity
1qt. sauce pan	4F
2qt. sauce pan	4F
2.5pt sauce pan	4F
4.5qt sauce pan	4F
5qt sauce pan	4F
6.5qt sauce pan	4F
16qt aluminum colander	1F
All Dish tables to attach to the dish machine	1F
Bakeware set, commercial	4F
Blender, electric	1F
Bowls, mixing, stainless steel, 5qt-30qt	4F
Braising pan, tilting	1F
Broiler, 18"-30", infrared	1F
Cake pans rectangular	4F
Can opener	1F
Cart, utility	4F
Cash register	1F
Chafing pans, stands, covers	4F
Coffee maker, 2-pot, 2 built-in warmers, automatic with decanters	1F
Commercial dishwasher	1F
Computer (see specifications)	1:4S
Counter, sandwich unit, self-contained, 6 ft. capacity	1F

* All equipment should have NSF approval.

Family and Consumer Sciences Education, Culinary Arts and Hospitality, continued

Equipment*	Recommended Quantity
Cutlery set, including knife rack and cutting board	4F
Cutting boards	8F
Dinnerware set for plate and table service for 60	1F
Dishwasher, commercial w/dish racks	1F
Dryer, clothes, heavy duty	1F
Equipment stand, stainless steel 24" x 8'x24"	1F
Exhaust system w/automatic fire extinguisher	1F
Flatware set for plate and table service for 60, including baskets and trays	1F
Food chopper/grinder-table top, hand operated, stainless steel w/5 cones	1F
Food processor, commercial multi-function, w/standard accessories	1F
Freezer, 25 cu. ft., reach-in, stainless steel front	2F
Fry kettle, 15 qt capacity	1F
Garbage disposal, commercial	1F
Glassware set for food and beverage service for 60	1F
Grill, two thermostats	1F
Hotel pans (at least double the number per units in the steam table)	8F
Hot food server, electric, portable w/sneeze guard	1F
Ice machine, 200-lb capacity	1F
Loaf pans	4F
Meat slicer (not to be used by students under age 18 without constant adult supervision)	1F
Menu board	1F
Microwave cookware, assorted set	1F
Dryer, clothes, heavy duty	1F

* All equipment should have NSF approval.

Family and Consumer Sciences Education, Culinary Arts and Hospitality, continued

Equipment*	Recommended Quantity
Mixer, bench model 5-qt. and 10-qt.	4F
Mixer, floor model, 20-qt.	1F
Oven, convection w/stand or Combi-oven	1F
Oven, microwave, commercial, heavy duty	1F
Pan set, for range and oven	4F
Percolator, 30-cup and 100-cup	1F
Pie pans	4F
Printer (see specifications)	2F
Proofing cabinet	1F
Punch bowl set	1F
Range, commercial	2F
Refrigerator, 47 cu. ft., two doors	1F
Round cake pans	4F
Salad bar, on casters, w/sneeze guard, center drain, fiber-glass reinforced plastic well	1F
Scale, baker's dough, 8 lb. cap.	1F
Scale, spring (1 32 oz., 1 25#)	1F
Sheet pans	4F
Sink, hand washing, single bowl	1F
Sinks, stainless steel, 2 compartment vegetable	1F
Sinks, stainless steel, 3 compartment pot or commercial dishwasher	1F

* All equipment should have NSF approval.

Family and Consumer Sciences Education, Culinary Arts and Hospitality, continued

Equipment*	Recommended Quantity
Steamer or Combi-oven	1F
Steamer/cooker, aluminum 2-qt. inset and 6-qt. outside pan	1F
Storage units, dish storage, flat shelving, 4 shelves high 12"x15" wide and 6' long	1F
Storage units, pot and pan, flat shelving, 5 shelves high 27"x60" long	1F
Storage units, dry food storage shelving	2F
Storage units, food storage bins, floor models on casters	4F
Square cake pans	4F
Table linens for plate, table, and buffet service for 60	1F
Tables, square, seating for 4 or round seating for 4-6	1:4S
Toaster, 2-slice commercial, electric	1F
Tube cake pans	4F
Utensil rack, hanging	1F
Utensil set for measuring, cutting, mixing, cooking, straining, and garnishing	4F
Vacuum cleaner	1F
Washer, clothes, heavy duty	1F
Work tables, stainless	1F

* All equipment should have NSF approval

**Family and Consumer Sciences Education
Exploring Life Skills Facility
Equipment List**

Courses taught within the facility: Exploring Life Skills

Code: 7018

Equipment	Recommended Quantity
Computer (see specifications)	1:4S
Dishwasher	1F
Dryer	1F
Microwave oven	1C
Printer (see specifications)	2F
Range w/ventilated hood	1C
Refrigerator/freezer w/ice maker	1F
Serger	2F
Sewing machine, domestic	1:4S
Tote trays in cabinets	1:1S
Vacuum cleaner	1F
Washer	1F

Tools and Other Items Under \$100.00

Equipment	Recommended Quantity
Baking set	1C
Cookware set	1C
Cutlery set	1C
Dinnerware set for 4, microwave safe with serving pieces	1C
Dressmaker cutting tool set	4F
Flatware set for 4	1C
Food processor, heavy duty	2F
Glassware set for 4	1C
Microwave cookware set	1C

Quantities are listed per: F=Facility C=Center S=Student

**Family and Consumer Sciences Education
Food Science Facility
Equipment List***

Courses taught within the facility: Food Science

Code: 7075

Equipment	Recommended Quantity
Balance, electronic	1C
Computer (see specifications)	1:4S
Conventional Oven, commercial	1F
Dehydrator	2F
Freezer	1F
Incubator	1F
Microscope	1C
ph meter, electronic	1F
Printer (see specifications)	2F
Storage cabinet, metal for chemicals	1F
UV Cabinet	1F

Tools and Other Items Under \$100.00

Equipment	Recommended Quantity
Hot plate	1C
Laboratory glassware set, assorted	1C
Laboratory experiment setup equipment, assorted	1C

***Note: Equipment as specified on the Foods I – Fundamentals and Foods II – Advanced list is also needed.**

HEALTH OCCUPATIONS EDUCATION

The comprehensive Health Occupations Education program seeks to meet present and predicted needs for health care workers within a health care delivery system that is characterized by diversity and changing technologies. It is a program that recruits qualified and motivated students and prepares them for pursuit of appropriate health careers. Curriculum concepts incorporate technological advances related to biotechnology and the health care delivery system, including ethics, professionalism, prevention (wellness), patient/client diagnosis, treatment, care, and rehabilitation as a result of disease/disorders. Teaching/learning strategies integrate appropriate workplace basic skills that assist students to use resources and technologies, function as effective members of a team, and practice their skills as interns or mentors in the health care community.

Health Occupations Education programs are designed to enable students to:

- . Select a health career major suited to their individual needs, aptitudes, abilities, and career development plan.
- . Develop a sound preprofessional and pretechnical multi-skilled foundation based on National Health Care Skill Standards.
- . Successfully pursue advanced education and/or entry-level employment in a health career major.
- . Develop workplace basic skills as applied to adapting to technological change, transferring of skills to different environments, and functioning as ethical and moral health team members.
- . Acquire and use information relevant to remaining technologically abreast of their chosen health career major and the health field in general.
- . Develop a professional philosophy as evidenced in personal qualities and practices, that improves the delivery of quality health care and health maintenance to consumers.
- . Become knowledgeable consumers of health care in a consistently changing environment.

The equipment standards are divided by course and listed separately as items that cost more than \$100, and items costing less. The lists contain minimum requirements for equipment. Supplies and materials that would be purchased on an annual basis are not included. A successful Health Occupations program will require a consumable supply budget. Equipment needs for the following Health Occupations Education facilities are included in this publication:

1. Exploring Biotechnology – Middle Grades
2. Comprehensive Health Occupations Education High School Facility

For additional information about equipment needs or materials and supplies, contact Health Occupations Education, Career-Technical Education, Division of Instructional Services in the Department of Public Instruction.

**Health Occupations Education
Biotechnology Facility
Equipment List**

Courses taught within this facility: Exploring Biotechnology

Code: 6828

Equipment	Recommended Quantity
Computer (see specifications)	1:4S
Incubator	2F
Microscope	1:2S
Microscope, monocular	2F

Tools and Other Items Under \$100.00

Equipment	Recommended Quantity
Beakers	4 dozen F
Biohazard container	2F
Flask	4 dozen F
Forceps	1:2S
Funnel	2 dozen F
Graduated cylinders	2 dozen F
Hot water bath	1:2S
Hot plate	1:2S
Medicine dropper	4 dozen F
Petri dishes	4 dozen F
Pipettes	4 dozen F
Pipette pump	4 dozen F
Rods, stirring	3S
Safety Glasses	1:1S
Scalpel	1:2S
Stirring rods	4 dozen F
Test Tubes	4 dozen F
Test Tube Rack	1:2S
Thermometer	1:2S

**Health Occupations Education
Comprehensive High School Facility
Equipment List**

Courses taught within the facility:

Health Team Relations	(HTR)	Code: 7210
Biomedical Technology	(BMT)	Code: 7200
Allied Health Sciences I	(AHSI)	Code: 7211
Allied Health Sciences II	(AHSII)	Code: 7212
Medical Sciences I	(MSI)	Code: 7221
Medical Sciences II	(MSII)	Code: 7222
Health Sciences Advanced Studies	(HSAS)	Code: 7299

Equipment	HTR	BMT	AHSI	AHSII	MSI	MSII	HSAS
Adjustable walker				1F		1F	
Adult scales with height rod	1F			1F		1F	
Adult skeleton	1F	1F	1F		1F		
Anatomical charts	1F	1F	1F	1F	1F	1F	1F
Bedside commode				1F			
Bedside lamp				3F		3F	
Computer (see specifications)	1:4S	1:2S	1:4S	1:4S	1:4S	1:4S	1:4S
Circulatory system model	1F	1F	1F	1F	1F	1F	
CPR mannequins (adult & infant)				2F		2F	
Dedicated telephone line	1F	1F	1F	1F	1F	1F	1F
Digital infant scales				1F		1F	
Digestive system model	1F	1F	1F	1F	1F	1F	
Electronic sphygmomanometer	2F	2F	2F	4F	2F	4F	
Eye model	1F	1F	1F	1F	1F	1F	
FAX machine/simulator				1F			
Folding screen				3F		3F	

Health Occupations Education, Comprehensive High School Facility, continued

Health Team Relations	(HTR)	Code: 7210
Biomedical Technology	(BMT)	Code: 7200
Allied Health Sciences I	(AHSI)	Code: 7211
Allied Health Sciences II	(AHSII)	Code: 7212
Medical Sciences I	(MSI)	Code: 7221
Medical Sciences II	(MSII)	Code: 7222
Health Sciences Advanced Studies	(HSAS)	Code: 7299

Equipment	HTR	BMT	AHSI	AHSII	MSI	MSII	HSAS
Head/brain model	1F	1F	1F	1F	1F	1F	
Heart model	1F	1F	1F	1F	1F	1F	
Heimlich maneuver model				1F		1F	
Hospital bed, electric with side rails, IV pole				3F		3F	
Hospital training doll				1F		1F	
Infant training doll				1F		1F	
Internet access	1:2S	1:2S	1:2S	1:2S	1:2S	1:2S	1:2S
IV pole, rolling				1F		1F	
Male/female pelvic organs model	1F	1F	1F	1F	1F	1F	
Mechanical lift				1F			
Medical exam table with stirrups				1F		1F	
Microscope		2F	2F	2F	2F	2F	
Moulage kit				1F		1F	
Ophthalmoscope/Otoscope	1F		1F	4F	1F	4F	1F
Overbed table				3F		3F	
Oxygen tank (empty) and tubing				1F		1F	
Patient chart rack/holder				1F		1F	
Respiratory system model	1F	1F	1F	1F	1F	1F	
Skin model	1F	1F	1F	1F	1F	1F	

Health Occupations Education, Comprehensive High School Facility, continued

Health Team Relations	(HTR)	Code: 7210
Biomedical Technology	(BMT)	Code: 7200
Allied Health Sciences I	(AHSI)	Code: 7211
Allied Health Sciences II	(AHSII)	Code: 7212
Medical Sciences I	(MSI)	Code: 7221
Medical Sciences II	(MSII)	Code: 7222
Health Sciences Advanced Studies	(HSAS)	Code: 7299

Equipment	HTR	BMT	AHSI	AHSII	MSI	MSII	HSAS
Skull			1F		1F		
Stretcher with siderails, safety belt				1F		1F	
Urinary system model	1F	1F	1F	1F	1F	1F	
View box, radiology	1F	1F	1F	1F	1F	1F	1F
Wheelchair with locks, safety belt				2F		2F	

Tools and Other Items Under \$100.00

Equipment	HTR	BMT	AHSI	AHSII	MSI	MSII	HSAS
Adding machine				1F			
Aneroid sphygmomanometer				9F		9F	
Bath thermometer				1F			
Beakers, graduated cylinder		1:4S		1:4S			
Bed linen sets				4F		4F	
Bedpan/urinal sets				4F			
Biohazard container	2F	2F	2F	2F	2F	2F	2F
Dental tools set				1F		1F	
Electronic digital thermometer				3F		3F	
Emesis basin				4F		4F	
Emesis kits				1F		4F	

Health Occupations Education, Comprehensive High School Facility, continued

Health Team Relations	(HTR)	Code: 7210
Biomedical Technology	(BMT)	Code: 7200
Allied Health Sciences I	(AHSI)	Code: 7211
Allied Health Sciences II	(AHSII)	Code: 7212
Medical Sciences I	(MSI)	Code: 7221
Medical Sciences II	(MSII)	Code: 7222
Health Sciences Advanced Studies	(HSAS)	Code: 7299

Equipment	HTR	BMT	AHSI	AHSII	MSI	MSII	HSAS
Gait belt				1:4S			
Glass thermometer				4F			
Limb restraint				1:4S			
Meal tray and china				3F			
Patient call bell/intercom				3F			
Pen flashlight				4F		4F	
Percussion hammer				1F		1F	
Sharps container				1F		1F	
Speculum, vaginal, sets				1F			
Stainless steel fliptop trash can	1F		1F	1F	1F	1F	1F
Stainless steel medical instrument sets				2F		2F	
Stainless steel footstool				3F		3F	
Stethoscope	1:2S	1:2S	1:2S	1:2S	1:2S	1:2S	
Teaching stethoscope				1:4S		1:4S	
Transcriber/tape recorder				1F			
Transfer forceps				2F		2F	
Trunk restraint				1:4S			
Tympanic thermometer	1F	1F	1F	4F	1F	4F	
Veterinary instrument set				1F		1F	
Vision Screening Charts (Snelling)				2F		2F	
Water pitcher with tray				3F		3F	

MARKETING EDUCATION

The purpose of the Marketing Education instructional program is to prepare students for advancement in marketing and management careers and future studies in community and technical colleges or four-year colleges or universities. Marketing is a vast and diverse discipline. It encompasses activities within production, as well as aspects of consumption. It is as specific as procedures for inventory control and, at the same time, as general as the creativity needed in effective promotion. The function of marketing occurs in all industries. Application of skills in reading, writing, mathematics, problem-solving, psychology, and critical thinking are found throughout the curriculum.

Based upon the National Marketing Education Standards and the National Curriculum Framework, courses in Marketing Education provide students with essential skills necessary to succeed in the workplace. The basic skills of reading, writing, and mathematics are an integral part of the Marketing Education curriculum. Skills in academic and technical areas are combined with the use of technology to provide students the foundation our business and industry leaders demand. Emphasis is placed on the development of competence in marketing functions and foundations, economic foundations, and human resource foundations to create a well-rounded education, enabling students to pursue further education in their chosen marketing career.

The high school scope and sequence of Marketing Education includes varied program offerings for students in grades 9 – 12. Students may enter the program and progress through the curriculum in one of six career majors:

- Business Management and Administration
- Entertainment, Event and Recreation Marketing
- Fashion Merchandising
- Hospitality and Tourism
- Marketing Sales & Services
- Small Business Management and Entrepreneurship

Individual Marketing Education courses are described in the **NC Standard Course of Study Guide, 2002**. Equipment needs for the following Marketing Education facilities are included in this publication:

1. Technology Intensive Laboratory for Marketing Education
2. Comprehensive High School Facility for Marketing Education

It is emphasized that these lists contain minimum requirements for equipment only. Supplies and materials that would be purchased on an annual basis are not included. These lists serve as a guideline for planning new programs as well as providing for existing programs. It is critical that facilities be properly equipped to ensure that students can achieve the required competencies and objectives for each course. In addition, Marketing Education programs should also be equipped with general items described in the introduction of this publication.

Further information about equipment needs for Marketing Education courses can be secured from Career-Technical Education, Division of Instructional Services in the Department of Public Instruction.

**Marketing Education
Comprehensive High School Facility
Equipment List**

Courses taught within the facility:

Fashion Merchandising	Code: 6631
Marketing	Code: 6621
Marketing Advanced Studies	Code: 6699
Marketing Management	Code: 6622
Principles of Business and Personal Finance	Code: 6600
Small Business Entrepreneurship	Code: 6615
Sports and Entertainment Marketing I	Code: 6670
Sports and Entertainment Marketing II	Code: 6671
Strategic Marketing	Code: 6626
Travel, Tourism, and Recreation Marketing	Code: 6645

Equipment	Recommended Quantity
Color inkjet printer	1CL
Current Software: Word Processing, Spreadsheet, Database, and Presentation	1:2S
Eight-foot conference table	1CL
Ergonomic adjustable-height rolling chairs	1:1S
Ergonomic student computer desks	1:1S
Internet connection with e-mail capability	1:2S
Laser printer, 1200 x 1200 dpi, 35 ppm, network capability	1CL
Multi-media computer with network capability, Pentium 4, 2.8 GHz. (minimum), 512 MB RAM (minimum), 40 GB Hard Drive, CD-RW (minimum), DVD-Rom, 10/100 Ethernet, sound card, and 17" LCD Monitor.	1:2S
Multi-media teacher station: printer, multi-media computer, digital camera, camcorder, TV/VCR, digital projector, interactive whiteboard.	1CL
Printer stand	1:1 Printer
Scanner	1F

MARKETING EDUCATION
Technology Intensive Laboratory

Courses taught within the facility:

Marketing Technology and Media

Code: 6665

Equipment	Recommended Quantity
Color Inkjet Printer	1F
Current Software: Word Processing, Spreadsheet, Database, and Presentation	1:1S
Digital Camcorder	1F
Digital Camera	1CL
Eight-foot conference table	1CL
Ergonomic adjustable-height rolling chairs	1:1S
Ergonomic student computer desks	1:1S
Internet Access and Intranet email/formal chatting capabilities	1:1S
Laser printer, 1200 x 1200 dpi, 35ppm, network capability	1CL
Multi-media computer with network capability, Pentium 4, 2.8 GHz. (minimum), 512 MB RAM (minimum), 40 GB Hard Drive, CD-RW (minimum), DVD-Rom, 10/100 Ethernet, sound card, and 17" LCD Monitor.	1:1S
Multi-media teacher station: printer, multi-media computer, digital camera, camcorder, TV/VCR, digital projector, interactive whiteboard.	1CL
Scanner	1CL
Universal Serial Bus (USB) flash drive (Pen Drive) 32 mb minimum	6F
Web Camera	1:2S

TECHNOLOGY EDUCATION

The Technology Education instructional program is designed to enable students to become technological literate. It is a standards-based program reflecting the Standards for Technological Literacy developed through the Technology for All Americans Project. The equipment and “tools” can be divided into two broad categories – those for communication, designing and problem solving, and those for creating physical models or artifacts. The design tools and equipment are generally computer-based and are used to develop technical reports, graphs, charts, graphics, CADD drawings, virtual models and machine to machine communication (robotics). The physical modeling tools and equipment are primarily traditional. They include various types of saws, sanders, drills as well as small wind tunnels and other specialized equipment. These types of equipment and tools are used to make physical models of structures, transportation devices and artifacts. Both types of equipment and tools are required for a contemporary technology program.

As with virtually all technology-based programs, there is continual and rapid change. This is particularly true of the communication and design category of equipment and tools used in the Technology Education classroom and laboratory. The following equipment lists serve as guidelines for planning new programs as well as for updating existing ones. The Technology Education courses may be taught using traditional whole class teaching strategies, using commercial or custom designed modules, or a combination of both. Regardless of which strategies are used, it is essential that the facilities are properly equipped to ensure that students can achieve the required competencies and objectives for each course. In addition to the equipment list, each of the Technology Education courses will require a number of resource books and/or software products. Individual course curriculum guides list the needed literature and software.

The Technology Education equipment standards are divided by facility and courses that can be taught in that facility. There are two lists for each facility – the first covers equipment costing over \$100, and the second list provides information on tools and other items under \$100. Individual Technology Education courses are described in the **NC Standard Course of Study Guide, 2002**. Facilities which support these courses are illustrated in the **Career-Technical Education Facilities Planner**. Equipment needs for the following Technology Education facilities and courses are included in this publication.

1. Comprehensive Technology Education Facility
2. Exploring Technology Systems Facility
3. Principles of Technology Facility
4. Scientific and Technical Visualization Facility

It is emphasized that these lists contain minimum requirements for equipment only. Supplies and materials that would be purchased on an annual basis are not included. A successful Technology Education program will use hands-on activities and creative problem solving approaches, which require a consumable supply budget. For additional information about equipment needs or materials and supplies please contact one of the consultants for Technology Education, Career-Technical Education, Division of Instructional Services in the Department of Public Instruction.

**Technology Education
Exploring Technology Systems Facility
Equipment List**

Courses taught within the facility: Exploring Technology Systems Code: 8108

Equipment	Recommended Quantity
Air compressor (mini 10 cfu)	1F
Audio tape recorder	1F
Band saw (bench)	2F
Cabinet (fire blanket)	1F
Cabinet (flammable liquid storage)	1F
Cabinet (materials and supplies)	2F
Camcorder with tripod	2F
Camera, digital	1F
Computer cart	1F
Computer (see specifications)	1:2S
Digital projector	1F
Drafting/ design table	1S
Dremel Motor tool kit (drill bit sets, grinding)	1F
Drill press (bench or pedestal)	1F
Eyewash station	1F
Fiber optic kit	1:4S
First aid cabinet	1F
Flatbed scanner	1F
Grinder (sharpening system)	1F
Injection molder	1F
Large hand tool cabinet (with tool set for 20 students)	1F
Maglev track (16 foot recommended)	1F
Mechanical chest and roller cabinet	1F
Microphone	1F
Miter box and saw	2F
Modulated laser	1F

Technology Education, Exploring Technology Systems Facility, continued

Equipment	Recommended Quantity
Multimeter	4F
Plastic oven	1F
Plastic strip heater	1F
Pneumatic-hydraulic trainer	1F
Portable storage device (CDRW, etc.)	1:4S
Printer	1:4S
Robotic equipment and software	1F
Rocket launcher starter kit	1F
Router bit set	2F
Router (1-1/2 hp)	2F
Safety Glasses/goggles in sanitizing cabinet	1S
Sander belt/disk (table or pedestal)	1F
Scale (triple beam platform balance)	2F
Scroll saw (bench)	2F
Silk screen kit	1:4S
Styrofoam cutter	1F
System Control Technology (LEGO Mindstorms, Robolab, etc.)	1:4S
Table saw (bench)	1F
Television monitor	1F
Track (CO2 cars)	1F
Vacuum cleaner	1F
Vacuum former	1F
Video editing equipment	1F
VCR	1F
Windtunnel	1F
Workbench (33" H x 36" W x 60" L with storage)	1:4S

Technology Education, Exploring Technology Systems Facility, continued

Tools and Other Items Under \$100.00

Equipment	Recommended Quantity
Calculator	1S
Calipers / micrometer sets (inside and out)	2F
Clamps (C-type various sizes/ bar or pipe / adjustable hand-screw/ spring clamps)	20 F
Cutting mats and modeling knives for cutting balsa wood	1S
Drafting tool set	1S
Drill (electric hand, 3/8" variable, cordless)	2F
Electronic lab kit	1:2 S
Gear / lever / pulley kit	1:2 S
Measuring tapes (12', 25', 50')	3F
Modeling tool set	1S
Multi-meter digital	1:14S
Oil stones (soft & medium hard)	2F
Oil waste can	1F
Pliers set (slip-joint / diagonal cut / needle nose)	2F
Rules (steel, metric & English)	20F
Sanders (belt/disk)	2F
Socket sets (standard and metric)	2F
Solar energy kit	1F
Steam engine	1F
Tin snip set (straight and circular)	2F

Quantities are listed per: F=Facility C=Center S=Student

Technology Education, Exploring Technology Systems, continued

Equipment	Recommended Quantity
Vises (machinist & woodworking)	12F
Wire stripper	2F
Wrench sets (standard and metric)	2F

Software	Recommended Quantity
Animation and Tilting Software	1S
Computer Aided Design Software (preferably with 3D modeling)	1S
Computer Drawing Software and graphics tablet	1S
Desktop Publishing Software including clipart and graphics tablet	1S
Microsoft Office	1S
Multimedia Presentation Software including sounds, music creation, and animation software	1S
Photographic Manipulation Software	1S
Simulation Software: flight (aerodynamics), automotive, and electronic circuits	1S
Structural Analysis Software	1:4S
Video Editing Software	1:4S
Virtual Reality Software and hardware	1S
Web Page Design Software	1S

Quantities are listed per: F=Facility C=Center S=Student

Technology Education, Comprehensive Technology Education, continued

Courses taught within the facility:	Fundamentals of Technology	(FT)	Code: 8110
	Communication Systems	(CS)	Code: 8125
	Manufacturing Systems	(MS)	Code: 8115
	Structural Systems	(SS)	Code: 8141
	Transportation Systems	(TS)	Code: 8126

Equipment	FT	CS	MS	SS	TS
Plastics strip heater	1F		1F	1F	1F
Plastics oven	1F		1F		1F
Power supply (variable, AC/DC)			1:4 S		
Printer (2 laser and 2 color ink jet)	4F	4F	4F	4F	4F
Programmable lathe (industrial quality with computer interface)	1F		1F		
Programmable router or mill (industrial quality, 12" X and Y travel and 3" Z travel with computer interface)	1F		1F		
Radio controllers - (AM surface only / 2 channel)					2F
Radio sailboats					2F
Radio controllers (FM / 4 channel)					2F
Radio control hand vehicles					2F
Radio control blimps					2F
Robotic arm (programmable; 5 axis, 18" reach minimum, teach pendent, and computer interface)	1F	1F	1F	1F	1F
Rocket launcher					2F
Router bit set	2F		2F	2F	2F
Router (1-1/2 hp)	2F		2F	2F	2F
Safety Glasses/goggles in sanitizing cabinet	1S	1S	1S	1S	1S
Sanders (belt/disk bench or pedestal)	2F		2F	2F	2F
Satellite communication system	1F	1F			

Technology Education, Comprehensive Technology Education, continued

Courses taught within the facility:	Fundamentals of Technology	(FT)	Code: 8110
	Communication Systems	(CS)	Code: 8125
	Manufacturing Systems	(MS)	Code: 8115
	Structural Systems	(SS)	Code: 8141
	Transportation Systems	(TS)	Code: 8126

Tools and Other Items Under \$100.00

Equipment	FT	CS	MS	SS	TS
Altitude finder					3F
Clamps (C-type various sizes/ bar or pipe / adjustable hand-screw / quick grip)	12F		12F	12F	12F
Computer control technology	1:2S	1:2S	1:2S	1:2S	1:2S
Digital scale	2F		2F	2F	2F
Drafting tool set	1S	1S	1S	1S	1S
Drill bit sets (twist, spade, forstner, machine spur, counter-sink set)	1F		1F	1F	1F
Drill (electric hand, 3/8" variable, reversible, cordless)	2 F		2 F	2 F	2 F
Electronic lab kit	1:2S	1:2S	1:2S	1:2S	1:2S
Experimental breadboard			1:4 S		
Face shields	5F		5F	5F	5F
Handscrew sets (six clamps)	1F		1F		1F
Helium tank (25-30 cfm)					1F
Hot air balloon launcher					1F
Measuring tapes (12', 25', 50')	3F		3F	3F	3F
Modeling tools set	1:2S		1:2S	1:2S	1:2S
Monokote Iron					2F
Motor (electronic, small, battery powered)	1:4S				1S
Multi-meter (digital)	1:4S	1:4S	1:4S	1:4S	1:4S

Quantities are listed per: F=Facility C=Center S=Student

**Technology Education
Principles of Technology Facility
Equipment List***

Courses taught within the facility: Principles of Technology I Code: 8011
Principles of Technology II Code: 8012

Equipment	Principles of Technology I	Principles of Technology II
Air tank	1:4 S	1:4 S
Computer Interface Sensors (current/pressure/force temperature/voltage)	1:4 S	1:4 S
Computers (see specifications)	1:4 S	1:4 S
First Aid Cabinet	1F	1F
Instrumentation amplifier	1:2 S	1:2 S
Printers (see specifications)	1:4 S	1:4 S
Safety goggles/glasses in sanitizing cabinet	1S	1S
Storage oscilloscope	1:4 S	1:4 S
Tool set-up (local purchase)	1F	1F
Unit 1 student lab set-up package	1:4 S	
Unit 2 student lab set-up package	1:4 S	
Unit 3 student lab set-up package	1:4 S	
Unit 4 student lab set-up package	1:4 S	
Unit 5 student lab set-up package	1:4 S	
Unit 6 student lab set-up package	1:4 S	
Unit 7 student lab set-up package		1:4 S
Unit 8 student lab set-up package		1:4 S
Unit 9 student lab set-up package		1:4 S
Unit 10 student lab set-up package		1:4 S

***For Unit equipment needs, contact vendors for Principles of Technology equipment.**

Technology Education, Principles of Technology*, continued

Equipment	Principles of Technology I	Principles of Technology II
Unit 11 student lab set-up package		1:4 S
Unit 12 student lab set-up package		1:4 S
Unit 13 student lab set-up package		1:4 S
Unit 14 student lab set-up package		1:4 S
Year 1 Teacher Demo package	1F	
Year 2 Teacher Demo package		1F

Tools and Other Items Under \$100.00

Equipment	Principles of Technology I	Principles of Technology II
Extender cables for sensors	1:2 S	1:2 S
Microphone	1:2 S	1:2 S
Photogate	1:2 S	1:2 S

***For Unit equipment needs, contact vendors for Principles of Technology equipment.**

Technology Education, Scientific & Technical Visualization, continued

Equipment	S&TV
Input/output video card	4F
Lead holder	3S
Paper cutter	1F
Printer table	1F
Sharpener, wood pencil, drafter	1F
Triangle, adjustable, 10"	1S
Triangle, 30 x 60 degree 10"	1S
Triangle, 45x90 degree, 10"	1S
Template, large isometric	1S
Template, small isometric	1S

Trade and Industrial Education

Trade and Industrial Education is a secondary program to prepare students for careers in industry and the trade occupations through a sequence of learning experiences. Instructional units are provided in the use of layout, designing, producing, processing, assembling, testing, maintaining, and servicing of industrial, commercial, and residential goods and products, as well as public services.

Trade and Industrial Education is designed to prepare students for initial employment and advancement in a wide of range of trade and industrial occupations. The major industrial areas for Trade and Industrial Education are construction, manufacturing, transportation, communication, Information Technology and public services. A balanced program of classroom study and practical work experiences produces competent workers who can manage resources, work cooperatively, organize and use information, understand complex systems, and apply appropriate technology.

Individual Trade and Industrial Education courses are described in the **NC Standard Course of Study Guide, 2002**. Facilities which support these courses are illustrated in the **Career-Technical Education Facilities Planner**.

The following equipment lists indicate the minimum requirements to effectively teach a Trade and Industrial Education course. A total skill development curriculum requires that specific equipment and supplies be available and reflect course competencies utilized in guiding the learner through the process of skill mastery. These lists serve as a guide for planning new programs as well as providing for existing programs.

Equipment lists are provided for the following facilities in Trade and Industrial Education:

Automotive Service Technology	Electronics
Collision Repair Technology	Masonry
Computer Engineering Technology	Metals Manufacturing Technology
Construction Technology	Network Engineering Technology
Cosmetology	Networking I
Drafting	Printing Graphics
Electrical Trades	T&I Cooperative Training
Furniture and Cabinetmaking	Welding Technology

Further information about equipment needs for Trade and Industrial Education courses may be secured from Career-Technical Education, Division of Instructional Services in the Department of Public Instruction.

Trade and Industrial Education
Automotive Service Technology Facility
Hand Tools
Equipment List*


Courses taught within the facility: Automotive Service Technology I Code: 7511
Automotive Service Technology II Code: 7512
Automotive Service Technology III Code: 7513

Tools and Other Items Under \$100.00

Equipment	Recommended Quantity
Air blow gun (meeting OSHA requirements)	4F
Allen wrench set - standard (.050" - 3/8") and metric (2mm - 7mm)	4F
Battery post cleaner	1F
Battery terminal- pliers and puller	1F
Brake spoon	4F
Chisel, cape (5/16") and cold (3/8", 3/4")	4F
Chisel holder	4F
Claw type pickup tool	2F
Combination wrench, standard (1/4" – 1") and metric (7mm - 19mm)	4F
Crowfoot wrench set - metric & standard	2F
Ear protection	1S
Feeler gauge (blade type), .002" - .040"; .006mm - .070 mm	4F
Files, coarse, 6" & 12"; fine 6" and 12"; half round 6" & 12" and round, 6 & 12"	4F
Flare nut (tubing) wrenches, 3/8" - 3/4" and 10mm - 17mm	2F
Flashlight	4F
Fuse puller	4F
Hack saw	4F
Hammer, 16 oz. ball peen, brass, dead blow, plastic mallet, plastic tip and rubber mallet	2F
Ignition wrench set - standard and metric	2F
Inspection mirror	2F
Jumper wire set (with various adapters)	2F

***This equipment list meets the requirements for National Automotive Technicians Education Foundation (NATEF).**

Trade and Industrial Education, Automotive Service Technology Hand Tools continued

Equipment	Recommended Quantity
Magnetic pickup tool	2F
Plier, combination 6", hose clamp, locking jaw, needle nose 6", side cutting and slip joint (water pump)	4F
Pry bar, rolling head	1F
Pry bar, straight	4F
Punch, center, brass drift, pin, 1/8", 3/16", 1/4" and 5/16", taper, 3/8", 1/2", and 5/8"	4F
Safety glasses (meeting OSHA requirements)	1S
Scraper, carbon, 1"	4F
Scraper, gasket, 1"	4F
Screwdriver-blade type, stubby, 6", 9", 12", and offset	4F
Screwdriver-phillips, stubby, #1, #2, 6" #1, 6" #2, 12" #3 and offset #2	4F
Screwdriver-impact driver set	4F
Screwdriver-positdrive Set #1, #2, #3and #4	4F
Screwdriver - torx  set, T-8, T-10, T-15, T-20, T-25, T-27, T-30, T-40, T-50 and T-55	4F
Screw starter, phillips & standard	4F
Socket set, 1/4" drive, flex/universal type	4F
Socket set, 1/4" and drive, 3" + 6" extensions	4F
Socket set, ratchet	4F
Socket set, 3/8" drive, 9mm – 19mm standard depth + deep	4F
Socket set, 3/8" drive, 3" & 6" & 12" & 18" extensions	4F
Socket set, 3/8" drive, flexhead ratchet	4F
Socket set, 3/8" drive, ratchet	4F
Socket set, 3/8" drive, spark plug sockets, 5/8" & 13/16"	4F
Socket set, 3/8" drive, speed handle	4F
Socket set, 3/8" drive, universal joint	4F

***This equipment list meets the requirements for National Automotive Technicians Education Foundation (NATEF).**

Trade and Industrial Education, Automotive Service Technology Hand Tools*, continued

Equipment	Recommended Quantity
Socket set, 3/8" drive, flexible socket set 3/8" - 3/4" & 9mm - 19mm	4F
Socket set, 1/2" drive, 7/16" - 1 1/8" standard depth & deep	4F
Socket set, 1/2" drive, 10mm - 25mm standard depth & deep	4F
Socket set, 1/2" drive, 3", 6" & 12" extensions	4F
Socket set, 1/2" drive, 6" extensions & 12" extensions	4F
Socket set, 1/2" drive, flex handle (breaker bar)	4F
Socket set, 1/2" drive, ratchet	4F
Socket set, 1/4" drive, 1/4" - 1/2" standard depth & deep	4F
Socket set, 1/4" drive, 6mm - 12mm standard depth and deep	4F
Socket set, 3/8" drive, 5/16" and 3/4" standard depth (6 point) + deep	4F
Torque wrench, 3/8" drive (10-250 lb. in.)	1F
Torque wrench, 3/8" drive (5 - 75 lb. ft.)	1F
Torque wrench, 1/2" drive (50-250 lb. ft.)	1F
Spark plug feeler gauge (gap tool)	4F
Tape measure	4F
Test light (12V)	4F
Tire pressure gauge	4F
Wire brush	4F

***This equipment list meets the requirements for National Automotive Technicians Education Foundation (NATEF).**

**Trade and Industrial Education
Automotive Service Technology
General Lab
Equipment List***

Equipment	Recommended Quantity
Air chisel (various bits)	1F
Air compressor and hoses	1F
Air pressure regulator	1F
Battery charger	1F
Bench or pedestal grinder	1F
Computer scan tool (hand held) or personal computer (PC) with interface capability for on-board diagnostics (OBD II compliant recommended)	1F
Coolant/combustion gas detector (recommended)	1F
Dial indicator with flex arm and clamp base	1F
Digital multi-meter with various lead sets	2F
Drill - variable speed, reversible	1F
Engine coolant recovery equipment (recycler or coolant disposal contract service)	1F
Floor jack (1" ton minimum)	4F
Hoist(s)	1F
Hydraulic press with adapters (25 ton)	1F
Impact wrench – 1" drive & 3/8" drive	2F
Oxy-acetylene torch	1F
Parts cleaning tank and gloves (non-solvent based cleaner suggested)	1F
Vernier calipers - 0-6" and 0-125mm	1F

***This equipment list meets the requirements for National Automotive Technicians Education Foundation (NATEF).**

Trade and Industrial Education, Automotive Service Technology, General Lab, continued

Tools and Other Items Under \$100.00

Equipment	Recommended Quantity
Air ratchet (3/8" drive)	4F
Automotive stethoscope (electronic recommended)	1F
Axle stands (safety stands)	8F
Bearing packer (hand operated)	1F
Belt tension gauge	1F
Compression tester	1F
Cooling system pressure tester and adapters	1F
Constant velocity joint (CV) service tools: boot installation tool	1F
Constant velocity joint (CV) service tools: boot clamp pliers or crimping ring	1F
Creeper	4F
Cylinder leakage tester	1F
Drain pans	4F
Drill - 3/8" variable speed, reversible	2F
Extension cords	4F
Face shields	4F
Fender covers	6F
Hand held vacuum pump	1F
Hot plate or equivalent	1F
Impact socket sets - 3/8" drive (standard and metric)	2F
Impact sockets - drive (7/16" - 1 1/8") & (12mm-32mm)	2F
Jumper cables	1F
Master puller set	1F

***This equipment list meets the requirements for National Automotive Technicians Education Foundation (NATEF).**

Trade and Industrial Education, Automotive Service Technology, General Lab, continued

Tools and Other Items Under \$100.00

Equipment	Recommended Quantity
Micrometers (depth)	1F
Micrometers - 0-1", - 1-2", - 2-3", - 3-4" and -4-5"	1F
Oil can - pump type	1F
Oil filter wrench	2F
Remote starter switch	1F
Screw extractor set	2F
Seat covers	4F
Snap ring pliers set - external & internal	1F
Soldering gun	1F
Soldering iron (25 watt pencil tip)	1F
Spark plug boot puller	1F
Tach/dwell meter	1F
Tap and die set - standard and metric	1F
Thread repair insert kit	1F
Tire inflator chuck	2F
Trouble/work lights (fluorescent preferred)	4F
Tube quick disconnect tool set	4F
Tubing bender	1F
Tubing cutter/flaring set (double-lap and ISO)	1F
Twist drill sets - 1/64" and 1/2"	2F
V-blocks	1F
Valve core removing tool	4F
Waste oil receptacle with extension neck and funnel	1F
Wheel clocks	8F
Workbenches with vises	8F

***This equipment list meets the requirements for National Automotive Technicians Education Foundation (NATEF).**

Quantities are listed per: F=Facility C=Center S=Student

**Trade and Industrial Education
Automotive Service Technology II, III
Specialty Tools and Equipment
Suspension and Steering
Equipment List**

Equipment	Recommended Quantity
Ball joint press and other special tools	1F
Coil compressor tool	1F
Shock Absorber tool	1F
Spring/strut compressor tool	1F
Steering column compressor tool	1F
Tire mounting machine (rim clamp suggested)	1F
Tool alignment Equipment – 4 wheel (including Alignment tools)	1F
Wheel alignment equipment - 4 wheel with rack (including alignment tools)	1F
Wheel balancer - electronic type	1F

Tools and Other Items Under \$100.00

Equipment	Recommended Quantity
Brake pedal depressor	1F
Drag link socket (wrench)	1F
Hand grease gun	2F
Inner tie rod end tool	1F
Pitman arm puller	1F
Shock absorber tools	1F
Tie rod puller	1F
Tire Mounting Machine (rim clamp type)	1F
Wheel weight pliers	1F

***This equipment list meets the requirements for National Automotive Technicians Education Foundation (NATEF).**

**Trade and Industrial Education
Automotive Service Technology II, III
Specialty Tools and Equipment
Brakes
Equipment List***

Equipment	Recommended Quantity
Brake drum micrometer and calibration equipment	1F
Brake lathe (with disc and drum service attachments – on car and bench)	1F

Tools and Other Items Under \$100.00

Equipment	Recommended Quantity
Brake bleeder, pressure	1F
Brake cylinder clamps	4F
Brake disc micrometer	1F
Brake shoe adjusting gauge	1F
Brake spring installers/removers	4F
Brake spring pliers	4F

***This equipment list meets the requirements for National Automotive Technicians Education Foundation (NATEF).**

**Trade and Industrial Education
Automotive Service Technology II, III
Specialty Tools/Equipment
Engine Performance
Equipment List***

Equipment	Recommended Quantity
Battery/starter/charging system tester	1F
Engine analyzer – with scope (lab scope with ignition display capability acceptable)	1F
Four or five gas exhaust analyzer	1F
Fuel injection cleaner	1F
Fuel injection pressure gauge sets with adapters	1F
Injector Pulse Tester	1F
Injector Pressure Gauge sets with adapters	1F
Logic Probe	1F

Tools and Other Items Under \$100.00

Equipment	Recommended Quantity
Antifreeze tester	2F
Dual trace lab scope	1F
Injector pulse tester	1F
Oxygen sensor socket	1F
Pinch-off pliers	1F
Sending unit socket	1F
Spark plug thread tap	1F
Static strap	1F
Timing advance light	1F
Vacuum/pressure gauge	1F

***This equipment list meets the requirements for National Automotive Technicians Education Foundation (NATEF).**

**Trade and Industrial Education
Automotive Service Technology II, III
Specialty Tools and Equipment
Electrical/Electronic Systems
Equipment List***

Equipment	Recommended Quantity
Battery/starter/charging system tester	1F
Battery Hydrometer	1F

Tools and Other Items Under \$100.00

Equipment	Recommended Quantity
Alternator service tools	1F
Connector pick tool set	1F
Door Panel Trim Tools	1F
Wire and terminal repair kit	4F

***This equipment list meets the requirements for National Automotive Technicians Education Foundation (NATEF).**

**Trade and Industrial Education
Collision Repair Technology Facility
Equipment List**

Courses taught within the facility: Collision Repair Technology I Code: 7521
Collision Repair Technology II Code: 7522

Equipment	Recommended Quantity
Air compressor, air cooled 10 HP	1F
Air hose assembly, oil resistant	8F
Airless plastic welder	1F
Bench grinder	1F
Body dolly set	2F
Cabinet, drum storage, vertical	1F
Cabinet, paint storage	1F
Cabinet, sterilizer	1F
Car jacks (3 ton)	8F
Centerline/datum gauge	1F
Color correcting light system	1F
Corrosion protection equipment & supplies	1F
Disc grinder (3")	1F
Frame machine	1F
Fresh air makeup system (for painting)	1F
Gas welding and cutting outfit	1F
Headlamp aiming equipment	2F
Hoist, winch, lift-pull	2F
Masker, stand, portable	2F
MIG welder	1F
Paint spray booth, automotive (down-draft)	1F
Plasma arc cutter	1F
Power chisel, pneumatic, set, accessories	1F
Ratchet & breaker bar set (1/4", 3/8", 1/2" drive)	2F
Reels, retractable, electric	4F
Refrigerant recovery system	1F
Respirator, paint spray	8F
Rivet gun (plastic)	1F
Rivet gun (steel)	1F
Sander, dual-action, pneumatic	4F

Trade and Industrial Education, Collision Repair Technology, continued

Equipment	Recommended Quantity
Sander, orbital-action, pneumatic	4F
Sander/filer, straight line	4F
Sander/grinder, air 5"	4F
Scissor type car lift	1F
Shears, sheet metal, air	2F
Snips, sheet metal	6F
Socket sets (1/4", 3/8", 1/2" drive)	2F
Spray gun (gravity feed)	4F
Spray gun (HVLP)	1F
Spray gun (siphon feed)	6F
Spray gun cleaning equipment	1F
Stud welder & Supplies	1F
Tram gauge	1F
Truck, cylinder, welding	1F
Universal measuring system	1F
Vacuum cleaner	1F
Wrench, impact, pneumatic 1/4" square drive	2F
Wrench, impact, pneumatic, 1/2" square drive	2F
Wrench, impact, pneumatic, 3/8" square drive	2F
Wrenches set (std. & metric/open & box)	2F

Tools and Other Items Under \$100.00

Equipment	Recommended Quantity
Aligner, door	2F
Bar, wrecking, 48"	2F
Bench	1F
Blocks, rubber, sanding	10F
Body hammer set	2F
Bow gun, air	4F
Brush, wire	6F
Caulking gun	1F

Trade and Industrial Education, Collision Repair Technology, continued

Equipment	Recommended Quantity
Clamp, sheet metal	6F
Clamp, welding	8F
Cold windshield knife	1F
Dremel grinder & accessories	1F
Drill motor 3/8"	1F
Eye wash basin	1F
Files, set	1F
Gloves, welding	4F
Goggles, welding	1S
Hammer, sledge 5 lb.	1F
Hammer, sledge, 12 lb.	1F
Hearing protection	1F
Heat gun	1F
Helmet, welding	1S
Hose connectors, quick detachable	2F
Infrared heat lamp (short wave)	1F
Knife, windshield, cold	1F
Machinist vise	1F
Mallet, rubber, 20 oz.	4F
Mil thickness gauge	1F
OSHA "right to know" compliance kit	1F
Pneumatic windshield knife	1F
Regulator, air	6F
Remover, window and door handle	2F
Safety container (solvent/waste)	1F
Safety glasses	1S
Safety goggles	1S
Sander, hand, filer	8F
Screwdriver set - 5-7 pc. flat	2F
Screwdriver set - 5-7 pc. flat	2F
Screwdriver set - #1 to #3 Phillips	2F
Screwdriver set - torx	2F

Trade and Industrial Education, Collision Repair Technology, continued

Equipment	Recommended Quantity
Shaker, paint	1F
Spill containment equipment	1F
Structural adhesive dispenser	6F
Tape, steel, measuring 12" standard & metric	1F
Tool, windshield (Ford)	2F
Tool, windshield (GM)	2F
Torque wrench ½" drive	1F
Trimmer abrasive disc	1F
Valve, adjusting, air flow	8F

Quantities are listed per: F=Facility C=Center S=Student

**Trade and Industrial Education
Computer Engineering Technology Facility
Equipment List**

Courses taught within the facility: Computer Engineering Technology I & II Code: 7991, 7992

Equipment	Recommended Quantity
Anti-static strap	1 S
Basic hand tool kit - should include the following: non-magnetic screwdriver - Phillips & standard magnetic screwdriver, grab tool, needlenose pliers, wire cutters	20F
Cabling tool kit (crimper, stripper, tester)	2F
Computer kit: set of parts that make up a computer (to be re-used)	1 per 2 students enrolled in course
Switch (with at least 8 ports)	1F
Lab table with 2 duplex electrical outlets per table	1:2S
Laptop computer	1F
Multi-media computer with network capability, Pentium 4, 2.8 GHz. (minimum), 512 MB RAM (minimum), 40 GB Hard Drive, CD-RW (minimum), DVD-Rom, 10/100 Ethernet, sound card, and 17" LCD Monitor.	1:1S
Multimeters	4F
Post Card	4F
Printer	2F
Safety goggles	1S
Storage cabinet (large, lockable)	2F
Surge protectors	1 per 2 machines

Software*	Suggested Quantity
DOS 6.X license	1 per computer
Windows 95 license	1 per computer
Windows 98 license	1 per computer
Windows 2000 license	1 per computer
Windows NT license	1 per computer
Windows XP	1 per computer
A+ Certification student books w/CD	1S
Anti-virus package	1 per computer
Diagnostic package with loopback plugs – such as, but not limited to: Amidiag, Win Checkit, PC Check	2F
Utilities package – such as, but not limited to: Norton System Works, McAfee Nuts and Bolts	2F

* Current as of 2004

Quantities are listed per: F=Facility C=Center S=Student

Trade and Industrial Education Computer Engineering Technology, continued

Consumable Supplies (yearly expense – replace as needed)	Recommended Quantity
Cable ties (misc. sizes)	Various
CAT 5 cable	500 feet
RJ45 connectors	100

Optional Equipment	Recommended Quantity
Bubble jet printer	1F
CDR/W Burner	1F
Data projector	1F
Digital camera	1F
Dot matrix printer	1F
External Zip or Jazz Drive	1F
Keyboard/Video/Mouse (KVM) switch	1F
Multi-port USB hub	1F
Scanner	1F
USB devices	1F
Uninterruptible Power Supply (UPS)	1F
Vacuum cleaner (small computer)	Various
Wireless Access Point	1F
Wireless Network cards	At least 2; one for PC and one for laptop

Trade and Industrial Education, Construction Technology, continued

Equipment	Recommended Quantity
Block plane 6" low angle	20F
Brace ratchet	2F
Brushes paint 1-1/2"	8F
Brushes paint 2"	8F
Brushes paint 3"	8F
Brushes paint 4"	8F
Brushes wire 1" x 5" x 10"	4F
Card brush – file	1F
Cats paw nail puller	20F
C-clamps 10"	4F
C-clamps 6"	4F
Circular saw, portable (machined base, electric brake)	10F
Clamps I beam 48"	4F
Clamps I beam 72"	4F
Clamps I-beam 24"	6F
Clamps I-beam 36"	6F
Clay pick	1F
Combination square 45 degree/90 degree	3F
Compass pencil 6" solid nut	20F
Cordless drill - 14.4 volt	3F
Cordless trim saw - 14/4 volt	2F
Diamond stone 2"x1"x7"	1F
Dirt tamper	2F
Doweling jig aluminum (with steel sleeves)	2F
Dresser - wheel grinder	2F
Drill 1/2 inch hammer kit with bits	2F
Drill 1/2 inch reversible, portable	2F
Drill bit set, high speed, 1/16 inch - 1/2 inch	4F
Drill bit set, speed bore 1/4 inch - 1-1/4 inch	2F
Drill, 3/8 inch variable speed, portable	2F
Drywall screwdriver	2F

Quantities are listed per: F=Facility C=Center S=Student

Trade and Industrial Education, Construction Technology, continued

Equipment	Recommended Quantity
Duster bench brush 8 inch	8F
File - auger bit 7" triangular	3F
File - auger bit, flat mill-bastard cut 10"	4F
File - auger bit, round wood 8"	4F
File - auger bit, square wood 8"	4F
Flat bar nail puller	20F
Foot pedal oil waste can	2F
Gage, marking mortise	2F
Gravel rake	4F
Hacksaw - metal frame adjustable	20F
Hacksaw blades – medium	36F
Half hatchet	4F
Hammer 16 oz straight	20F
Hammer, 2 lb sledge	4F
Hammer, 20 oz straight	20F
Hammer, 8 lb sledge	4F
Hand held power plane	2F
Hand screw maple wood steel spindle 10" clamp	2F
Hole saw kit for doors with bits	2F
Jig saw or saber saw, portable	2F
Jointer, 8 inch	1F
Ladder, step 6 foot	4F
Level (24 inch spirit)	20F
Level (48 inch spirit)	20F
Level (72 inch spirit)	2F
Long blade spade	2F
Mattock	2F
Mechanics tool box	1F
Nail sets - 1/32 inch to 4/32 inch	20F
Oil stone crystolan 2"x 1" 7"	2F
Plane, jack 14"	2F

Quantities are listed per: F=Facility C=Center S=Student

Trade and Industrial Education, Construction Technology, continued

Equipment	Recommended Quantity
Pliers - channel lock	6F
Pliers - vise grip 10"	6F
Pliers 6"slip joint	20F
Pliers 8"needle nose	6F
Plumb-bob (brass replaceable steel tips)	6F
Powder actuated tool - 22 caliber	1F
Putty knife - 1-1/4" 7"	10F
Reciprocating saw - portable	2F
Round point shovel long handle	6F
Router drywall	1F
Router laminate trim kit	1F
Router, portable with bits - one horsepower	1F
Rule - zig-zag folding wood 6'	20F
Sander, palm - 1/4 sheet	3F
Sander, portable finishing - half sheet	2F
Saw compass 12"	20F
Saw coping	20F
Saw crosscut 22"10 pt.	20F
Saw rip 26"5-1/2 pt.	20F
Screwdriver set - Phillips	4F
Screwdriver set - standard	4F
Smart level - 48 inch	4F
Socket wrench set 3/8 inch - 1 inch	2F
Square drywall 48"aluminum	2F
Square, framing aluminum	20F
Square point shovel, long handle	6F
Square, speed aluminum	20F
Square, try 8"steel	20F
Square-sliding tee bevel, 8"steel brass tipped	20F
Tape (100 foot reel)	20F

Quantities are listed per: F=Facility C=Center S=Student

Trade and Industrial Education, Construction Technology, continued

Equipment	Recommended Quantity
Tape (200 foot reel)	4F
Tapes (20 - 25 foot steel)	20F
Tool box, carpenter's	20F
Tool grinder, 6 inch with stand	1F
Torpedo levels 9"	20F
Utility knife - retractable blade	20F
Wheelbarrow, 5 cubic feet	4F
Wood chisel set 1/4 inch to 1-1/2 inch	3F
Workbench, with 4 vises - cabinet storage underneath	4F
Wrecking bar 24"	4F
Wrench crescent 10"	4F
Wrench crescent 8"	4F
Wrench set, Allen SAE and metric	2F
Wrench set, combination 3/8 inch - 1-1/4 inch	2F

Quantities are listed per: F=Facility C=Center S=Student

**Trade and Industrial Education
Cosmetology Facility
Equipment List**

Courses taught within the facility: Cosmetology I Code: 7811
 Cosmetology II Code: 7812

Equipment	Recommended Quantity
Automatic clothes dryer	1F
Automatic clothes washer	1F
Booster chair	2F
Drying chair with hair dryer	18F
Facial chair	3F
Hydraulic styling chair	30F
Microscope	1F
Reception desk	1F
Reception desk stool	1F
Storage cabinet	2F

Tools and Other Items Under \$100.00

Equipment	Recommended Quantity
32 oz sanitizer jar	20F
4-8 oz sanitizer jar	10
Application bottle	20F
Brush	6S
Cold wave rod	10 Gross F
Color aprons	10F
Comb - 3 all purpose	6S
Comb - 3 rattail	6S
Comb-out capes	1S
Covered waste receptacle	15F
Curling iron	20F
Dry sanitizer	4F
Electric hair clipper	6F
Electric iron heater	6F
Electronic PH analyzer	1F

Quantities are listed per: F=Facility C=Center S=Student

Trade and Industrial Education, Cosmetology, continued

Equipment	Recommended Quantity
Frosting cap	6F
Hand mirror	10F
Hand styling dryer	20F
Heat cap	5F
Lighted magnifying glass	1F
Manicure stool	5F
Manicure table	5F
Manicuring finger bowl	1S
Mannequin	25F
Measuring spoon set	3F
Medicine dropper	3F
Pressing comb	10F
Professional manicure kit	15F
Rollers	144F
Shampoo bowl 2-8	2-10F
Shampoo cape	1S
Storage cabinet	2F
Student kit	20F
Styling station	10-30F
Therapeutic lamps	2F
Timer	10F
Towels	144F
Vibrator	1F
Wax machine	1F
Wig work block	10F

Quantities are listed per: F=Facility C=Center S=Student

Trade and Industrial Education, Drafting Facility, continued

Drafting I	(DFT) Code: 7921
Drafting - Engineering II	(ENG) Code: 7972
Drafting - Engineering III	Code: 7973
Drafting - Architectural II	(ARC) Code: 7962
Drafting - Architectural III	Code: 7963

Equipment	DFT	ENG	ARC
Device, lettering	1S		
Erasing Shield	1S	1S	1S
File, compass lead	1S	1S	1S
French curve	1S	1S	1S
Gauge, screw pitch		1:4S	
Gauge, small hole		2 F	
Gauge, vernier height 10"		2F	
Gauges, telescoping		2F	
Input/output video card	4F	4F	4F
Instrument set, drawing	1S	1S	1S
Lead holder	3S	2F or 3S	3S
Lead refills, 2H & 6H	1F	1F	1F
Paper cutter	1F	1F	1F
Parallel bars	1S	1S	1S
Pointer, lead	1S	1S	1S
Printer table	1F	1F	1F
Protractor, plastic	1S	1S	1S
Scale, triangular, architect's, 12"	1S	1S	1S
Scale, triangular, engineer's 12"	1S	1S	1S
Scale, triangular, mechanical 12"	1S	1S	1S
Scale, triangular, metric, 12"	1S	1S	1S
Sharpener, wood pencil, drafter	1F	1F	1F
Template, bolts & nuts		10F	
Template, circle, fraction	1S	1S	1S
Template, circles, metric	1S	1S	1S
Template, electrical			10F
Template, ellipse	1S	1S	1S
Template, house plan & plumbing	1S	1S	1S
Template, small isometric	1S	1S	1S
Template, large isometric		10F	
Template, machine & cap screws		10F	
Template, screw threads		10F	
Triangle, adjustable, 10"	1:4S	1:4S	1:4S
Triangle, 30 x 60 degree 10"	1S	1S	1S
Triangle, 45x90 degree, 10"	1S	1S	1S

Quantities are listed per: F=Facility C=Center S=Student

Trade and Industrial Education, Electrical Trades, continued

Equipment	Recommended Quantity
EMT bender set (1/2" 3/4")	3 F
Extension cord (50")	1 F
Extension cord (100")	1 F
File set, flat mill (10"- 12")	1 F
Fish tape	2 F
Fuse puller	2 F
Hammer, 16 oz (electrician's)	1 S
Hammer, 3 lb	1 F
Hard Hats	1 S
Holding screwdriver	4 F
Hole saw set (1/2"- 2")	2 F
Jig Saw	1 F
Knockout set (1/2"- 2")	1 F
Level, 24"	2 F
Level, 48"	2 F
Level, torpedo	1 S
Maul, 8 lbs	1 F
Measuring Tape, 100"	1 F
Nut driver set (1/4" - 1/2")	4 F
Pliers, arc joint	1 S
Pliers, diagonal cutting, 5" with insulated handles	1 S
Pliers, lineman, 9" with insulated handles	1 S
Pliers, long nose side cutting, 6"w/insulated handles	1 S
Pocket Knife (locking blade)	1 S
Portable GFIC	1 F
PVC conduit hot bender (1/2"- 2")	1 F
Punch, center	4 F
Reamer, Pipe, ratchet type	1 F
Reciprocating saw	1 F
Rigid pipe bender set (1/2" 3/4")	3 F
Rule, 6" folding	1 S

Quantities are listed per: F=Facility C=Center S=Student

Trade and Industrial Education, Electrical Trades, continued

Equipment	Recommended Quantity
Saw, compass	4 F
Saw, hack	1: 2S
Saw, keyhole	4 F
Screwdriver, Phillips #2	1 S
Screwdriver set, standard, 1/4"x 4"	1 S
Screwdriver, standard, 1/4"x 4"	1 S
Screwdriver, standard, 5/16"x 4"	1 S
Shears, metal, straight	1 F
Shovel, round	2 F
Circular saw	1 F
Snips, aviator, LH	1 F
Snips, aviator, RH	1 F
Soldering gun	1 F
Spade shovel, (6" blade)	2 F
Square, combination	2 F
Tool pouch belt	1 S
Torch, propane	1 F
Volt/ohm meter	1:2 S
Voltage, continuity, polarity tester (12-440 volts)	4 F
Waste can, oily	1 F
Wire stripper, 4", for #16 - #10 wire	1:2 S
Wrench set, combination (3/8" - 1")	1 F
Wrench set, hex	1 F
Wrench set, socket, 3/8" drive (3/8" - 1")	1 F

Quantities are listed per: F=Facility C=Center S=Student

**Trade and Industrial Education
Furniture and Cabinetmaking Facility
Equipment List**

Courses taught within the facility: Furniture and Cabinetmaking I Code: 7621
Furniture and Cabinetmaking II Code: 7622

Equipment	Recommended Quantity
Band saw, 20"	1F
Booth, spray (that meets OSHA & EPA requirements)	1F
Cabinet, tool storage	1F
Cabinet, paint storage	1F
Compressor, air, (5 hp, 2 stage)	1F
Down Draft Table	2F
Drill press	1F
Drum sander	1F
Floor belt/disc sander 6 x 48	1F
Grinder, 7", pedestal model	1F
Gun, brad (air power)	2F
Lathe, wood 12", variable speed w/lathe chisel set	1F
Planer, surface, 20 minimum	1F
Power compound miter box, 12"	2F
Radial arm saw, 12"	1F
Router table	1F
Shaper, wood spindle (3/4" or 1/2") w/shaper cutter set	1F
Sprayer, paint, HVLP	1F

Tools and Other Items Under \$100.00

Equipment	Recommended Quantity
Apron, lab/shop	1S
Bastard file, half round (10" – 12")	1:4 S
Bit set, Forstner 1/4" - 2-7/8" (3/8" shank)	2F
Bit set, multi-spur 1-1/8" – 2' (3/8" shank)	2 F
Blade set, circular saw (including dado set) (carbide only)	2 F
Block, hand sanding	1:4 S
Box, caulk	1F
Broom, 24" floor	4F
Brush, bench	6F

Quantities are listed per: F=Facility C=Center S=Student

Trade and Industrial Education, Furniture and Cabinetmaking Facility, continued

Equipment	Recommended Quantity
Brush, wire	1F
Caliper, inside	2F
Caliper, outside	2F
Chisel and bits, mortiser ¼", 3/8", ½", 5/8"	1F
Chisel, ½"	4F
Chisel, ¼"	4F
Chisel, 1"	4F
Chisel, 3/4"	4F
Circular saw, 10" unisaw	2F
Clamp, bar (2')	6F
Clamp, bar (4')	6F
Clamp, bar (6')	6F
Clamp, C	8F
Clamp, speedbar	18F
Combination drill & countersink set	4F
Cord, 25' extension	4F
Cutter, glass	1F
Dovetail jig, 16" 2/bits	1F
Drill bit set, high speed, 1/16" - ½"	2F
Drill bit set, speed bore, ¼" - 1"	2F
Drill, ½" electric	1F
Drill, 3/8" cordless, keyless chuck	4F
Drill, 3/8" electric, keyless chuck	2F
Ear protective device	1S
Engraver, electric metal	1F
Gloves, chemical	1S
Hacksaw, metal	2F
Hammer, claw 13 oz	6F
Hammer, claw 16 oz	6F
Jointer, 8", longbed	1F
Kit, first aid	1F
Knife, utility	4F
Level, 24"	2F
Level, 36" or 48"	2F

Trade and Industrial Education, Furniture and Cabinetmaking Facility, continued

Equipment	Recommended Quantity
Level, torpedo	2F
Mallet, wood or rubber	1:4 S
Mask, finishing	1S
Miter box	2F
Mortiser, hollow chisel	1F
Nail sets (1/32", 1/16", & 3/32")	1:4 S
Nailer, (air power)	2F
Panel saw	1F
Plane, block	2F
Plane, jack	2F
Plane, smooth	2F
Pliers, diagonal	1F
Pliers, needle nose	1F
Pliers, slip joint	1F
Plug cutter set	1F
Rasp, wood	1:4 S
Router bit set	2F
Router, 1-1/2 hp	4F
Rule, 6' folding	10F
Safety glasses	24F
Safety goggles	8F
Sander, belt (3" or 4" or 24")	2F
Sander, finishing	4F
Saw, back	2F
Saw, builder's 7-14"	2F
Saw, compass	1F
Saw, coping	1F
Saw, dovetail	2F
Saw, hand, crosscut	2F
Saw, hand, rip	2F
Saw, saber, portable	2F
Screwdriver set, Phillips	1F
Screwdriver set, standard	1F
Scroll saw, 24"	2F

Quantities are listed per: F=Facility C=Center S=Student

Trade and Industrial Education, Furniture and Cabinetmaking Facility, continued

Equipment	Recommended Quantity
Shears, metal, straight	2F
Side stroke sander	1F
Snips, aviator LH	2F
Snips, aviator RH	2F
Socket wrench set, 3/8" – 1"	2F
Square, combination	4F
Square, framing	4F
Square, try	1:4 S
Stapler, (air power)	2F
Tape, 12' retractable	4F
Tape, 25' retractable	2F
Waste can, oily rags	2F
Work bench w/ 4 vises	4F
Wrench set, Allen	2F
Wrench set, combination 3/8" – 1"	2F
Wrench, adjustable set (6", 10", 12")	2F

Quantities are listed per: F=Facility C=Center S=Student

Trade and Industrial Education, Electronics Facility, continued

Equipment	Traditional Lab	Computer Assisted Lab
Magnifying work light	1F	1F
Nut driver set	4 F	4F
Pliers – combination slip joint	1F	1F
Pliers – needle nose	1:2S	1:2S
Pozidriv	1F	1F
Safety glasses	1S	1S
Screwdriver set	1F	1F
Screwdriver set – jewelers	1F	1F
Tool – 6 in 1	1F	1F
Torx driver set (security)	1F	1F
Vise – Circuit board	1:2S	1:2S
Wire gauge	1F	1F
Wire strippers – mechanical	1:2S	1:2S
Wrench set – box end	1F	1F
Wrench set – open end	1F	1F

Quantities are listed per: F=Facility C=Center S=Student

**Trade and Industrial Education
Masonry Facility
Equipment List**

Courses taught within the facility: Masonry I Code: 7711
 Masonry II Code: 7712
 Masonry III Code: 7713

Equipment	Recommended Quantity
Cabinet, w/safety glasses/goggles	1F
Ladder, extension, 20'	1F
Mixer, mortar	1F
Trowel, power finishing	1F

Tools and Other Items Under \$100.00

Equipment	Recommended Quantity
Axe	1F
Bar, wrecking	1F
Brick/block cart	4 F
Broom (24")	1:2 S
Brush, acid	4F
Brush, hand	1:4 S
Chisel, brick	1:4 S
Chisel, plugging	1F
Chisel, rubber grip	1F
Circular saw, masonry 14"	1F
Circular saw, portable, woodcutting	1F
Clamps, C (4")	10F
Corner block	24F
Corner poles	4F
Cutter, wire 1 rebar	2F
Drill, portable, 1/2"	1F
Drill, portable, 3/8"	2F
Extension cord (100' - 230V)	2F
Face shield	2F
File, mill, 10" or 12"	1F
Half hatchet	2F

Quantities are listed per: F=Facility C=Center S=Student

Trade and Industrial Education, Masonry Facility, continued

Equipment	Recommended Quantity
Hammer, brick	1S
Hammer, claw 16 oz	2F
Hammer, mash	1F
Hammer, rawhide	1F
Hammer, tile	1F
Hammer, toothed bush	1F
Handsaw, crosscut	2F
Hoe, mortar	2F
Jointer, mason's	1S
Ladder, step, 6'	1F
Level, 24"	1S
Level, 48"	1S
Level, line	2F
Level, transit, w/tripod & story pole	1F
Line, chalk	1F
Magnesium float, bull, 48"	1F
Masonry blade, diamond	1F
Maul	1:4 S
Mortar box, metal 8.4 Cu. Ft.	2F
Pans, mortar, metal	1S
Pick	1F
Pliers, slip joint	1F
Plumb bob	1F
Rubber gloves (chemical)	4F
Rule, 6' mason	1S
Screwdriver set, standard	1F
Screwdriver set, Phillips	1F
Shears, metal, straight	1F
Shovel, flat	1:3 S
Shovel, round	1:3 S
Spade	1F
Square, framing	1:2 S
Square, bevel and combination	1F
Tape, 100'	2F
Tongs, brick	14F
Trowel, brick	1S
Trowel, finishing, (cement)	1:4 S
Wheelbarrow	4
Wrench set, combination (3/8" - 7/8")	1

Quantities are listed per: F=Facility C=Center S=Student

Trade and Industrial Education, Metals Manufacturing Technology, continued

EQUIPMENT	RECOMMENDED QUANTITY
Set of counter bores including (3/4 diameter with 5/16 pilot) and (19/32 diameter with 25/64 pilot)	1F
Set of fractional size drills (1/64? - 1/2?)	3F
Set of fractional size drills (23/64? - 1?)	2F
Set of joe blocks	1F
Surface finish comparison plate	1F
Surface grinder with 10" and smaller diameter wheel	3F
Tap and die set	1F
Telescoping gage set (or inside calipers)	1F
Thread cutting tool holder and thread tool	6F
Universal three-jaw chuck and chuck key	6F
Vernier, dial, or electronic caliper (6?)	10F
Vertical milling machine w/ accessories and tooling (table capacity of 12x36)	6F
Welder, arc (200 amp GMAW)	1F
Welder, arc (250 amp AC/DC SMAW)	1F
Workbench with 2 vises	6F
Wrench set	1F

Tools and Other Items Under \$100.00

EQUIPMENT	RECOMMENDED QUANTITY
Adjustable parallels	4F
Appropriate wrench sets (compound, Allen, Aloris)	5F
Assorted C-clamps	12F
Assorted grinding wheels (suitable for mounting to the spindle)	12F
Ball peen hammer (assorted sizes)	12F
Carbide tool bits for straight turning, shoulder turning and facing (pre-ground) to include holders, tool posts, and inserts	15F
Center drills	14F
Center punch set	3F
Chamfer tool 45 degree	7F

Quantities are listed per: F=Facility C=Center S=Student

Trade and Industrial Education, Metals Manufacturing Technology, continued

Equipment	Recommended Quantity
Combination square set	6F
Composition hammer (soft face, dead blow)	6F
Countersink 1" diameter 82 degree	4F
Countersink ¾" diameter minimum	4F
Cutting-off tool and holder (1/8)	6F
Diamond dresser	3F
Divider 4" or 6"	6F
Drill bit, 7/8" with ½" shank	6F
Drill bit, 47/64" with ½" shank	6F
Drill bit, 3/8"	6F
Drill bit, 5/16"	6F
Drill bit, #7	6F
Drill bit, ½"	6F
Drill bit, ¼"	6F
Drill, portable (1/4")	2F
Drill, portable (3/8")	1F
Drive plate and dog	6F
Dye bottles, layout	4F
Edge finder	6 F
Face mills (2" diameter, carbide inserts)	6F
Face mills (3" diameter, carbide inserts)	6F
Grinder, tool post	2F
Hacksaw	10F
Internal threading tool	6 F
Live and dead centers, thread chasing dial	6F
Machinist handbook	1S
Magnetic base for indicators	4F
Magnifying glass	2F
Micrometer, demonstration model	1F
Mill file (assorted)	10F
Milling vise (6" or greater)	6F
Parallel set	6F
Prick punch	6F
Radius gage set	1F
Rule (6")	1S
Rule (12")	6F

Quantities are listed per: F=Facility C=Center S=Student

Trade and Industrial Education, Metals Manufacturing Technology, continued

Equipment	Recommended Quantity
Scriber	1S
Screwdriver set	2F
Small hole gauge set	1F
Solid machinist square	6F
Standard tool holders	6F
Surface gage (of sufficient size)	2F
Tap wrench	2F
Thread form gage - 60 (center gage)	6F
Tool post	6F
Vise soft jaws	10F
Wiggler	2F
Wrench, adjustable (8")	10F
In order to complete NIMS skill certifications the following tooling may be needed in addition to the equipment standards listed above.	
Inserts for face mill	72F
Micrometer, 0-1" OS	5F
Micrometer, 1-2" OS	2F
Micrometer, 2-3" OS	2F
Ream, 3/8" dia. hand	6F
Ream, 3/4" dia. machine	6F
Starrett last word indicator set	6F
Tap set, 3/8-16 UNC (plug, taper, & bottom)	6F
Tap set, 1/4-20 UNC (plug, taper, & bottom)	6F

Quantities are listed per: F=Facility C=Center S=Student

**Trade and Industrial Education
Networking Facility
Equipment List**

Courses taught within the facility: Networking I

Code: 7980

EQUIPMENT	Recommended Quantity
Applicable Novell Server Software	1:1S
Applicable Microsoft Server Software	1:1S
Applicable Microsoft Desktop Operating System Software	1:1S
Cable Testers	3F
Cable Kits with Strippers and Crimping Tools	1:4S
CAT5 Cable – 1000 ft+	1F
Digital Camera	5F
Flash Drives	1:1 machine
Internet Connectivity	1F
Keyboard/Video/Mouse (KVM) Switch	1:1S
Linux Software	1:1S
Multimedia computer with network capability, Pentium 4, 2.8 GHz (minimum), 512 MB RAM (minimum), 40 GB hard drive, CD-RW (minimum), DVE-ROM, 10/100 Ethernet, sound card, and 17" LCD monitor.	1:1S
Printer (inkjet or laser jet)	1:1S
Projection Device	1:1S
RJ-45 Connectors	100
Removable Hard Drives	2F
Software Utilities (imaging software, anti-virus, firewall, etc.)	1:1 machine
Surge Protectors	1:2 machines
Switch	4-5 (for groups)
Technician tool kit	1:1 ratio
Uninterruptible Power Supply (UPS)	1:2 machines
Wireless Access Point and Wireless Network Cards	1:1S

Quantities are listed per: F=Facility C=Center S=Student

**Trade and Industrial Education
Trade and Industrial Cooperative Training Facility
Equipment List**

Courses taught within the facility: Trade and Industrial Cooperative Training I Code: 7821
Trade and Industrial Cooperative Training II Code: 7822

Equipment	Recommended Quantity
Computer (see specifications)	1:4S
Cabinet, storage (tote tray)	1F
Printer (see specifications)	2F

Tools and Other Items Under \$100.00

Equipment	Recommended Quantity
Calculator, combination display/printer	1F
Calculators, hand-held	20F
Gavel & sounding block	1F

Quantities are listed per: F=Facility C=Center S=Student

**Trade and Industrial Education
Welding Technology Facility
Equipment List**

Courses taught within the facility: Welding Technology I Code: 7661
 Welding Technology II Code: 7662
 Welding Technology III Code: 7663

Equipment	Recommended Quantity
Abrasive cutoff saw, 14 inch	1F
Air compressor	1F
Anvil	1F
Arc welding booths	20F
Bandsaw/power hacksaw	1F
Carbon arch cutting/gouge equipment	1F
Cutting table (minimum 2 feet x 4 feet)	1F
Drill bit set	2F
Drill press vise	1F
Drill press, 15 inch	1F
GMAW attachment for running aluminum	1F
GMAW welder and accessories	1:2 S
Grinding table with vise	3F
GTAW/SMAW welder AC/DC 250 amp and accessories	5F
Ironworker capacity 1/2 inch by 10 inch flat, 3/8 x 3 x 3? angle, notcher, 1/2 to 1 inch hole punch	1F
Machinist vise	4F
Micrometer set, outside	1F
Number & letter stamp set	1F
OAW cutting outfits with carts	4F
OAW welding/cutting stations	4F
Oxyacetylene manifold - 4 stations	1F
Pedestal grinder, 12 inch	1F
Pedestal grinder, 6 inch	1F
Plasma cutting outfit (1/2 inch capacity)	1F
Portable electric drill, 1/2 inch	2F
Portable hand grinder, 7 inch	4F
Rod oven	1F
Shear (capacity 1/2 inch x 48 inch)	1F
SMAW welder 250 amp AC/DC	10F
SMAW welder portable AC/DC 250 amp (gasoline engine)	1F
SMAW welder 600 amp AC/DC with carbon arc cutting capabilities	1F
Steel layout table	1F
Tap & die set	1F
Track torch	1F
Ventilation system	1F

Quantities are listed per: F=Facility C=Center S=Student

Trade and Industrial Education, Welding Technology, continued

Tools and Other Items Under \$100.00

Equipment	Recommended Quantity
Arc welding helmets	1S
Ball pen hammer	6F
Bar clamps	4F
C-Clamp	12F
Chipping hammers	1S
Combination square	4F
Combustible materials storage cabinet	1F
Crowbar	1F
Earplugs	1S
Files (various)	12F
Fillet gage	5F
Fire extinguisher	6F
First-aid kit	1F
Framing square	4F
Hacksaw	2F
Leather apron	1S
Leather gloves (pair)	2 S per year
Leather jacket	12F
Leather sleeves	5F
Level - 2 foot and 4 foot	1F each
Level – torpedo	2F
Oxyacetylene cutting tips (various)	10F
Oxyacetylene goggles	1S
Oxyacetylene welding tips (various)	10F
Pliers 8 inch	1S
Portable electric drill, 3/8 inch	1F
Portable hand grinder, 4 inch	2F
Punch & chisel set	2F
Safety glass storage cabinet	1F
Safety glasses/goggles	2S per year
Screwdriver set	2F
Shop vacuum	1F
Sledgehammer	2F
Soapstone holder	4F
Stainless steel brushes	1S
Steel rule	2 F
Strikers	1S
Tape measures - 25 foot	4F
Tip cleaners	6F
Tool cabinet/chest (portable)	2F
Vise grips	1S
Welding screens (portable)	4F
Wire brush	1S

Quantities are listed per: F=Facility C=Center S=Student