

ALBUQUERQUE  
TECHNICAL-VOCATIONAL INSTITUTE

DAY DIVISION

1979-80

Preparatory

Trades

Health Occupations

Technologies

# **DAY DIVISION 1979-80**

## **Albuquerque Technical-Vocational Institute**

Volume XV

June 1979

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525 Buena Vista SE  
Albuquerque, NM 87106  
Telephone: 843-7250**

**Joseph M. Montoya Campus  
(East Campus)  
4700 Morris NE  
Albuquerque, NM 87111  
Telephone: 298-5461**

The east campus of the Albuquerque Technical-Vocational Institute has been named in honor of Senator Joseph M. Montoya, a good friend of T-VI who died June 5, 1978.

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Upon enrollment, each student receives a copy of this catalog. It contains complete course descriptions for all full-time programs at T-VI and additional information about school policies and operation which a student needs to know.

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## About the Institute

The Albuquerque Technical-Vocational Institute (T-VI) is a public postsecondary school which has as its primary goal to provide adults with entry-level job skills and the related education needed to succeed in an occupation. The Institute opened in 1965.

T-VI's first classes were held in an elementary school, which had been closed, and in surplus army barracks and cottages. Since then, more than \$11 million worth of construction has taken place.

The main campus occupies 25 acres of land on both sides of Coal Avenue SE with most of the Trades and the Department of Developmental Studies located on the south portion of the campus.

Business Occupations and Electronics are also offered at the new East Campus at 4700 Morris NE, and Graphic Arts is offered only at that campus.

Classes and clinical experiences for the Health Occupations Department are held at 1215 Hazeldine SE and at local hospitals.

Funding for T-VI programs and most construction and equipment comes from a local property tax and from an appropriation by the New Mexico State Legislature. A small amount of money, usually for special programs, comes from federal funds.

## School Year

T-VI is a year-round school with classes meeting on a trimester basis. Each trimester contains 75 days of instruction, generally with a 10-day break between trimesters. Most students go to school year-round until they complete their program, although it is possible to take a trimester off if necessary.

During the 1979-80 school year, the Day Division Fall Trimester begins on Sept. 4, the Winter Trimester Jan. 2 and the Summer Trimester on Apr. 30. The Evening Division classes generally begin the following week. Open-entry programs such as Sheet Metal, Graphic Arts and Developmental Studies, accept new students at different points throughout the trimester and always at the beginning.

The Displaced Homemaker class is offered twice each trimester and a few programs begin with a new class only once each year. They are Practical Nursing, Respiratory Therapy Technician, Electromechanical Drafting, Laser-Electro-Optic Technology, Electromechanical Technology and Small Business Operation. Patient Service Clerk is offered three times from January to August.

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### EQUAL EDUCATIONAL OPPORTUNITY POLICY

The Albuquerque Technical-Vocational Institute, in compliance with Title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972 and Section 504 of the Rehabilitation Act of 1973 does not discrim-

inate on the basis of race, color, national origin, handicap or sex in any of its policies, practices or procedures. The provision includes, but is not limited to, admissions, employment, financial aid and educational services.

## Class Periods

The class schedule a student is given at registration shows the period of the school day, and room location, of each class.

The times for each of the class periods are as follows:

Morning	Afternoon
Period 0— 7:20 to 8:15	Period 5—12:20 to 1:15
Period 1— 8:20 to 9:15	Period 6— 1:20 to 2:15
Period 2— 9:20 to 10:15	Period 7— 2:20 to 3:15
Period 3—10:20 to 11:15	Period 8— 3:20 to 4:15
Period 4—11:20 to 12:15	Period 9— 4:20 to 5:15
	Period 10— 5:20 to 6:15

## Trimester Calendar 1979-80

### FALL TRIMESTER, 1979

Evening Division Preregistration	July 23-August 10
Day Division Registration*	August 8-10
Evening Division Registration	August 29-30
Day Division Classes Begin	September 4
Evening Division Classes Begin	September 10
Mid-Trimester Grades Due	October 25
Teacher Inservice (No Classes)	October 26
Thanksgiving Holiday	November 22-23
Withdrawal Deadline	December 6
Last Day of Classes	December 20
Trimester Break	December 21-January 1

### WINTER TRIMESTER, 1980

Evening Division Preregistration	November 19-December 7
Day Division Registration*	December 11-13
Evening Division Registration	December 27-28
Day Division Classes Begin	January 2
Evening Division Classes Begin	January 7
Mid-Trimester Grades Due	February 21
Teacher Inservice/Snow Day (No Classes)	February 22-25
Withdrawal Deadline	April 3
Holiday	April 4
Last Day of Classes	April 18
Trimester Break	April 19-29

### SUMMER TRIMESTER, 1980

Evening Division Preregistration	March 24-April 3
Day Division Registration*	April 9-11
Evening Division Registration	April 23-24
Day Division Classes Begin	April 30
Evening Division Classes Begin	May 5
Memorial Day Holiday	May 26
Mid-Trimester Grades Due	June 20
Independence Day Holiday	July 3-6
Withdrawal Deadline	August 1
Last Day of Classes	August 15
Trimester Break	August 16-September 1

\*Registration for students who have completed the admissions process.

# 1979

  = Non-school day

**SEPTEMBER**

S	M	T	W	T	F	S
						1
2	<span style="border: 1px solid black;">3</span>	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

Labor Day, Sept. 3

**OCTOBER**

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	<span style="border: 1px solid black;">26</span>	27
28	29	30	31			

Mid-term, Oct. 25  
Inservice, Oct. 26

**NOVEMBER**

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	<span style="border: 1px solid black;">22</span>	<span style="border: 1px solid black;">23</span>	24
25	26	27	28	29	30	

Thanksgiving, Nov. 22-23

# 1980

**DECEMBER**

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	<span style="border: 1px solid black;">21</span>	22
23	<span style="border: 1px solid black;">24</span>	<span style="border: 1px solid black;">25</span>	<span style="border: 1px solid black;">26</span>	<span style="border: 1px solid black;">27</span>	<span style="border: 1px solid black;">28</span>	29
30	<span style="border: 1px solid black;">31</span>					

Trimester Break, Dec. 21-Jan. 1

**JANUARY**

S	M	T	W	T	F	S
		<span style="border: 1px solid black;">1</span>	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

**FEBRUARY**

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	<span style="border: 1px solid black;">21</span>	<span style="border: 1px solid black;">22</span>
23	<span style="border: 1px solid black;">24</span>	<span style="border: 1px solid black;">25</span>	26	27	28	29

Mid-term, Feb. 21  
Inservice/Snow Day, Feb. 22-25

**MARCH**

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

**APRIL**

S	M	T	W	T	F	S
		1	2	3	<span style="border: 1px solid black;">4</span>	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	<span style="border: 1px solid black;">21</span>	<span style="border: 1px solid black;">22</span>	<span style="border: 1px solid black;">23</span>	<span style="border: 1px solid black;">24</span>	<span style="border: 1px solid black;">25</span>	26
27	<span style="border: 1px solid black;">28</span>	<span style="border: 1px solid black;">29</span>	30			

Holiday, Apr. 4  
Trimester Break, Apr. 19-29

**MAY**

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	<span style="border: 1px solid black;">26</span>	27	28	29
30	31					

Memorial Day, May 26

**JUNE**

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

Mid-term, June 20

**JULY**

S	M	T	W	T	F	S
		1	2	<span style="border: 1px solid black;">3</span>	<span style="border: 1px solid black;">4</span>	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Independence Day, July 3-6

**AUGUST**

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	<span style="border: 1px solid black;">18</span>	<span style="border: 1px solid black;">19</span>	<span style="border: 1px solid black;">20</span>	<span style="border: 1px solid black;">21</span>	<span style="border: 1px solid black;">22</span>
23	24	<span style="border: 1px solid black;">25</span>	<span style="border: 1px solid black;">26</span>	<span style="border: 1px solid black;">27</span>	<span style="border: 1px solid black;">28</span>	<span style="border: 1px solid black;">29</span>
30	31					

Trimester Break, Aug. 16-Sept. 1

## Instructional Programs

The DAY DIVISION at the Institute provides instruction leading to certificates of completion in 36 programs. Not all programs are offered at both the Main and East campuses and the advanced work in some of the East Campus programs must be completed at the Main Campus.

A Preparatory Program is offered for persons who do not qualify for immediate entry into one of the vocational programs.

It is also possible to study for the high school equivalency examinations in a General Educational Development program offered during the day by the T-VI Evening Division.

Full-time students in the Day Division attend classes four to six hours a day. They may also enroll in any additional courses on a space-available basis. Persons not working towards a certificate may enroll on a part-time basis as special students in specific courses if space is available.

A SWING SHIFT SCHEDULE is available in some Office Occupations and Accounting classes. The work completed in these classes may be applied toward a diploma. Hours are flexible ranging from 3 p.m. to 9 p.m., and day and evening classes may be combined for those who want to attend full-time.

The EVENING DIVISION offers close to 100 *Skill Improvement* classes to part-time students in business, trade and industrial areas, health and technical occupations. The *Adult Basic Education* section offers a variety of classes for improvement of written and spoken communication skills, math and GED examination subjects. This section also includes a citizenship program for aliens.

The *Apprenticeship Program* includes classes for some of the construction trades and is operated in cooperation with labor-management Joint Apprenticeship Committees.

A *Vocational Enrichment Program*, providing vocational classes for high school students at their schools after regular school hours, is also sponsored by T-VI's Evening Division.

In some cases, Evening Division classes may be taken to satisfy requirements for related courses in diploma programs in the Day Division. Students should check with their counselors and program coordinators to insure that the evening class may be utilized.

Complete information about the evening programs, which are also tuition-free to New Mexico residents, is available in the Evening Division catalog.

## Admissions Policies

The Institute's Day Division programs are designed for adults who do not have a marketable skill and who are willing and able to pursue an instructional program 20 to 30 hours per week. To enter the Day Division, a student should be either 18 years of age or a high school graduate. However, persons less than 18 years of age are eligible to apply if they have been excused from compulsory attendance in a secondary school under the provisions of Section 22-12-2 NMSA 1978 as amended.

Applications for admission to the Institute are handled on a first-come, first-served, space-available basis. All of the programs have minimum requirements in math and reading skills and some applicants may need to enter the Preparatory Program to strengthen these skills before beginning a vocational program. Some programs have additional requirements listed with the program descriptions which must be met before the applicant may be admitted to that particular program.

*No person shall be denied admission to the Institute on the basis of race, color, national origin, sex, handicap, creed or financial status.*

The admissions process is aimed at helping each applicant enter a career field in which his or her chances for success are good. For that reason, an applicant will be *discouraged* from entering a program for which he or she does not meet minimum physical requirements or academic preparation. The applicant will be *denied* admission to a program where a health or physical condition poses a danger to the applicant or to fellow students. In the latter case, the admissions counselor will help the applicant find a program in which the condition will not pose a hazard or prevent the student from doing required assignments.

In programs which include paid on-the-job training among graduation requirements, T-VI will have enough training stations arranged so each student can be given one or more interview leads. The student must interview for the training station leads provided. Students in paid on-the-job training must conform to personnel policies of the cooperating employer.

The admissions process gives first priority to persons who do not have a salable skill. A student who has already obtained a salable skill by successfully completing a T-VI program will be admitted to a new T-VI career field only after first-priority applicants have been considered. This restriction applies for 12 months after graduation.

Applicants wanting to enroll for less than 15 hours a week also will be admitted only after first-priority applicants have been considered. Persons wanting less than 15 hours per week are encouraged to consider T-VI Evening Division classes.

A person who does not attend the first two days of classes will be withdrawn automatically as a "no show" and will be re-admitted only if there is still space available in the desired classes.



## How To Enroll

If you want to enroll in T-VI's Day Division, complete these four steps as soon as possible. Some programs fill quickly. If you miss a test date, your admission will be delayed and you may have to wait a trimester or more to get into the program you want.

### 1. FILL OUT THE APPLICATION FORM.

Application forms are available at the T-VI reception desks at the Main and East campuses, at most high school counseling offices in the state, at all branches of the Albuquerque Public Library and on p. 45 of this catalog.

You may apply for all but two of the full-time programs at any time (see below). The earlier you apply, the better your chances of getting into a program during the trimester you want. Mail or bring your completed application to the T-VI Admissions Office on the Main Campus between 8 a.m. and 5 p.m., Monday through Friday. If you want more information before deciding which program you would like to enter, ask to see an admissions counselor.

The two programs with special application periods are Practical Nursing (Mar. 3, 4 and 5, 1980, from 8 a.m. to noon, for the class that begins September, 1980) and Respiratory Therapy Technician (May 5-30, 1980, for the class which begins in September, 1980). There is only one class admitted each year in these programs.

### 2. COMPLETE YOUR TESTS.

When you turn in your application, you will be given an appointment for a program advisement test. Until you have completed the testing, you cannot complete steps 3 or 4.

### 3. HAVE AN ADMISSIONS INTERVIEW.

This will happen right after you have taken the tests. Your counselor will explain the test results and tell you the programs you have qualified to enter. You may also visit with the coordinator of the program you have chosen, if necessary.

### 4. PAYMENT OF FEES.

This must be done before you are admitted and may be done as soon as the counselor has approved your program. If the program you want is filled for the coming trimester, you will be admitted on a "standby" basis for that trimester and given a reservation for the next trimester when that program has openings.

The fees which must be paid to complete your admission are the \$10 pre-registration fee, which is not refundable; the \$10 textbook deposit, which is refundable; and the personal equipment fee, if any, for the program you are entering.

If your fees are going to be paid directly to the school by a support agency, you must bring a written authorization from that agency in order to complete the admissions process.

There is no tuition charge for New Mexico residents of one year or longer. The out-of-state tuition charge of \$400 per trimester does not have to be paid at admission but must be paid before your class registration.

When you have completed all four steps, you will be told when to come for your final registration. Your class schedule will be ready for you at that time, and once you have registered you will be ready to report to classes on the first day of the trimester.



# Educational Costs

An important matter when considering attending T-VI full-time is what it will cost to do this. An estimated educational costs budget, including food, housing, personal and transportation expenses for a full-time student, is used by the Financial Aids Office to help determine a student's need for financial aids.

This is the estimated budget chart in use at T-VI during 1978-79. Costs will be slightly higher during 1979-80 due to inflation.

<i>Student's Status</i>	<i>1 Trimester</i>	<i>2 Trimesters</i>	<i>3 Trimesters</i>
<b>DEPENDENT LIVING WITH HEAD OF HOUSEHOLD</b>			
Tuition and Fees*	\$ 10 to \$95*	\$ 20 to \$150*	\$ 30 to \$205*
Room and Board	\$ 632	\$1264	\$1896
Books and Supplies	\$ 16	\$ 32	\$ 48
Personal Expenses	\$ 219	\$ 438	\$ 657
Transportation	\$ 130	\$ 260	\$ 390
<i>Total</i>	\$1007 to \$1092*	\$2014 to \$2164*	\$3021 to \$3196*
<b>DEPENDENT LIVING WITH PARENTS</b>			
Tuition and Fees*	\$ 10 to \$95*	\$ 20 to \$150*	\$ 30 to \$205*
Room and Board	\$ 275	\$ 550	\$ 825
Books and Supplies	\$ 16	\$ 32	\$ 48
Personal Expenses	\$ 219	\$ 438	\$ 657
Transportation	\$ 130	\$ 260	\$ 390
<i>Total</i>	\$ 650 to \$735*	\$1300 to \$1430*	\$1950 to \$2125*
<b>INDEPENDENT SINGLE</b>			
Tuition and Fees*	\$ 10 to \$95*	\$ 20 to \$150*	\$ 30 to \$205*
Room and Board	\$ 715	\$1430	\$2145
Books and Supplies	\$ 16	\$ 32	\$ 48
Personal Expenses	\$ 219	\$ 438	\$ 657
Transportation	\$ 130	\$ 260	\$ 390
<i>Total</i>	\$1090 to \$1175*	\$2180 to \$2310	\$3290 to \$3465*
<b>MARRIED, HEAD OF HOUSEHOLD**</b>			
Tuition and Fees*	\$ 10 to \$95*	\$ 20 to \$150*	\$ 30 to \$205*
Room and Board	\$1230	\$2460	\$3690
Books and Supplies	\$ 16	\$ 32	\$ 48
Personal Expenses	\$ 405	\$ 810	\$1215
Transportation	\$ 135	\$ 270	\$ 405
<i>Total</i>	\$1796 to \$1881	\$3592 to \$3722*	\$5388 to \$5563
<i>Additional amounts for each child:</i>			
Room and Board	\$ 204	\$ 408	\$ 612
Personal Expenses	\$ 135	\$ 270	\$ 405

\*If the student is paying non-resident tuition, add \$400 per trimester.

\*\*If the student is divorced or separated and has children, count the first child instead of spouse and then use the "Married, Head of Household" figures.

# Charges and Fees

**TUITION:** For non-residents of New Mexico (persons who have not lived in the state for the 12 months preceding the start of classes) the tuition charge is \$400 per trimester, or \$18 per trimester hour for schedules of less than 22 hours per week.

For New Mexico residents—which by law includes members of the armed forces stationed on active duty in New Mexico and their dependents—there is no tuition.

All tuition charges must be paid in full by the close of registration day.

Anyone who has paid tuition and withdraws before the end of a trimester will be refunded the unused part of the tuition fee.

Payments in lieu of tuition are requested from agencies that are authorized to pay the training expenses of students referred to T-VI.

**PRE-REGISTRATION FEE:** There is a \$10 pre-registration fee each trimester, which must be paid before the applicant is admitted. *Payment of the pre-registration fee reserves the applicant a place in classes only through the close of the final registration day.* Unless the applicant has requested, in writing, an extension of the reservation beyond the formal registration days, his or her place in classes may be filled by another applicant during the late registration process.

The pre-registration fee is a charge for processing the applicant's admission *and is not refunded once it has been paid.* A refund of the pre-registration fee will be made only if the Institute cancels an instructional program to which applicants have been admitted.

**BOOKS AND SUPPLIES:** Textbooks are provided on free loan to all full-time students, but they must be paid for if the student loses or damages them. *Students must make a \$10 textbook deposit when they are admitted.* The deposit will be refunded if and when the student returns all the textbooks upon leaving the Institute or if the applicant withdraws before receiving any textbooks.

Students are responsible for buying their own routine school supplies, such as paper, notebooks and pencils.

**CREDIT CARDS:** The Institute accepts Visa and Master Charge credit cards for payment of tuition and fees.

**PERSONAL EQUIPMENT FEE:** Many programs at T-VI require students to buy personal equipment, such as uniforms in the Health Occupations and tool kits in the Trades and Technologies. The equipment, purchased by T-VI at the best possible prices, is issued during the early part of the program and becomes the personal property of the student.

*Personal equipment fees must be paid in full before the student is admitted.* Refunds of the personal equipment fee will be made if the applicant withdraws before the equipment has been issued. *Once it has been issued, no refund will be made.*

In some programs, this fee is paid at the beginning of the program only. In other programs, additional equipment fees are required each trimester as the students need to add to their equipment at the advanced levels.

Personal equipment fees for 1979-80 are:

	Trimester I	II	III	IV	V
PREPARATORY . . . . .	none				
BUSINESS OCCUPATIONS . . . . .	none				
CULINARY ARTS					
Baking . . . . .	\$80				
Quantity Food Preparation . . . . .	\$80	\$50			
HEALTH OCCUPATIONS					
Nursing Assistant . . . . .	\$25				
Patient Service Clerk . . . . .	\$25				
Practical Nursing . . . . .	\$70				
Respiratory Therapy Technician . . . . .	\$65				
TECHNOLOGIES					
Civil and Map Drafting . . . . .	\$35	\$40			
Construction Drafting . . . . .	\$35				
Electromechanical Drafting . . . . .	\$35				
Electromechanical Technology . . . . .	\$20				
Electronics . . . . .	\$20				
Laser Electro-Optic Technology . . . . .	\$20				
TRADES					
Air-Conditioning, Heating, Refrigeration . . . . .	\$80	\$50	\$50		
Auto Collision Repair . . . . .	\$80	\$50			
Auto Mechanics . . . . .	\$80	\$50	\$50		
Carpentry . . . . .	\$80	\$50			
Diesel Mechanics . . . . .	\$80	\$50	\$50	\$50	\$50
Electrical Trades . . . . .	\$80	\$50			
Graphic Arts . . . . .	\$25				
Industrial Electrician . . . . .	\$80	\$50	\$50		
Machine Trades . . . . .	\$90	\$50	\$50		
Masonry . . . . .	\$80				
Parts Specialist . . . . .	\$40				
Plumbing . . . . .	\$80	\$50			
Sheet Metal . . . . .	\$80	\$50			
Small Engine Mechanics . . . . .	\$80	\$50			
Welding . . . . .	\$80	\$50			

# Consumer Information

As a person considers attending T-VI, or any other postsecondary school, questions will arise about the quality of the school. Information that can help judge the quality of any school includes the school's accredita-

tion, its graduate placement record and its drop-out rate. Here is the latest information available in these areas about T-VI and its programs:

	<i>Total Graduates Available for Work</i>	<i>Employed: Training Related Jobs</i>	<i>Employed: Jobs Closely Related to Training</i>	<i>Employed: Non-Training Related Jobs</i>	<i>Unemployed: 60 days after Graduation</i>	<i>AVERAGE MONTHLY BEGINNING SALARIES (Training-Related Jobs)</i>
<b>BUSINESS OCCUPATIONS</b>						
Accounting . . . . .	84	67 ( 80%)	7 ( 8%)	5 ( 6%)	5 ( 6%)	\$623
Distributive Education . . . . .	65	63 ( 97%)	2 ( 3%)	— —	— —	\$487
Fashion Merchandising . . . . .	35	31 ( 89%)	— —	3 ( 9%)	1 ( 2%)	\$498
Office Occupations—Clerical . . . . .	62	54 ( 87%)	2 ( 3%)	1 ( 2%)	5 ( 8%)	\$560
Office Occupations—Secretarial . . . . .	24	20 ( 84%)	2 ( 8%)	— —	2 ( 8%)	\$611
Office Occupations—Refresher . . . . .	49	41 ( 84%)	— —	2 ( 4%)	6 (12%)	\$602
Retail Sales Management . . . . .	36	30 ( 83%)	4 (11%)	1 ( 3%)	1 ( 3%)	\$576
<b>HEALTH OCCUPATIONS</b>						
Nursing/Home Health Asst. . . . .	56	43 ( 77%)	— —	8 (14%)	5 ( 9%)	\$520
Patient Service Clerk . . . . .	38	35 ( 92%)	— —	1 ( 3%)	2 ( 5%)	\$562
Practical Nursing . . . . .	67	62 ( 93%)	1 ( 1%)	2 ( 3%)	2 ( 3%)	\$681
Respiratory Therapy . . . . .	12	12 (100%)	— —	— —	— —	\$691
<b>TECHNOLOGIES</b>						
Data Processing . . . . .	20	14 ( 70%)	— —	1 ( 5%)	5 (25%)	\$848
Drafting, Construction . . . . .	34	32 ( 94%)	— —	2 ( 6%)	— —	\$604
Drafting, Electromechanical . . . . .	9	8 ( 89%)	— —	1 (11%)	— —	\$789
Drafting, Civil and Map . . . . .	34	33 ( 97%)	— —	1 ( 3%)	— —	\$771
Electronics . . . . .	63	55 ( 87%)	— —	7 (11%)	1 ( 2%)	\$920
Laser Electro-Optic . . . . .	13	13 (100%)	— —	— —	— —	\$908
<b>TRADES</b>						
Air Conditioning/Htg./Refrig. . . . .	34	29 ( 85%)	— —	2 ( 6%)	3 ( 9%)	\$683
Auto Collision Repair . . . . .	12	8 ( 67%)	2 (17%)	1 ( 8%)	1 ( 8%)	\$548
Auto Mechanics . . . . .	57	47 ( 82%)	1 ( 2%)	7 (12%)	2 ( 4%)	\$640
Baking . . . . .	12	9 ( 75%)	— —	2 (17%)	1 ( 8%)	\$522
Carpentry . . . . .	31	25 ( 81%)	3 (10%)	2 ( 6%)	1 ( 3%)	\$645
Culinary Arts . . . . .	16	13 ( 81%)	2 (13%)	— —	1 ( 6%)	\$632
Diesel Mechanics . . . . .	44	41 ( 93%)	— —	1 ( 2%)	2 ( 5%)	\$856
Electrical Trades . . . . .	46	40 ( 87%)	— —	5 (11%)	1 ( 2%)	\$630
Industrial Electrician . . . . .	7	5 ( 72%)	— —	1 (14%)	1 (14%)	\$810
Machine Trades . . . . .	28	28 (100%)	— —	— —	— —	\$894
Masonry Trades . . . . .	10	7 ( 70%)	— —	2 (20%)	1 (10%)	\$621
Parts Specialist . . . . .	7	6 ( 86%)	— —	— —	1 (14%)	\$632
Plumbing . . . . .	39	37 ( 95%)	— —	1 ( 2%)	1 ( 2%)	\$672
Sheet Metal . . . . .	15	13 ( 87%)	— —	2 (13%)	— —	\$583
Small Engine Mechanics . . . . .	19	17 ( 90%)	— —	1 ( 5%)	1 ( 5%)	\$598
Welding . . . . .	47	40 ( 85%)	2 ( 4%)	3 ( 6%)	2 ( 4%)	\$876
<b>TOTALS</b> . . . . .	1,125	978 ( 87%)	28 ( 2%)	65 ( 6%)	54 ( 5%)	

**DROP-OUT AND RETENTION RATES:** At T-VI, as at any school, some students who begin a program are unable to finish the entire program for a variety of reasons.

While the number who are able to complete their program varies between the different majors, and from trimester to trimester, the retention rate each trimester of full-time vocational program students at T-VI during 1978 was more than 80 percent. Put another way, only 20 percent of the students who began a trimester in 1978 had dropped out before the end of the trimester. The termination rates for the three trimesters of 1978 were: Winter—19.4 percent, Summer—20.4 percent, and Fall—20.0 percent.

**GRADUATE PLACEMENT:** Since the purpose of T-VI's full-time instructional programs is to prepare students to get a job, the graduate job placement record is an important measure of quality of the programs.

Study the placement record—60 days after graduation—of the graduates available for employment in each T-VI program during 1978 (graduates in April, August and December 1978).

**ACCREDITATION:** The Institute is fully accredited as a certificate-granting institution by the Commission on Institutions of Higher Education of the North Central Association of Colleges and Schools. This Accreditation status indicates that the institution is offering its students the educational opportunities implied in its objectives on a satisfactory level.

In addition to T-VI's North Central Association accreditation, two of the health occupations programs have been accredited by special medical accrediting agencies. The Practical Nursing program is accredited by the National League for Nursing and the Respiratory Therapy Technician program by the American Medical Association's Council on Education.

Almost all full-time programs are approved for Veterans Administration training benefits by the New Mexico Veteran's Training Approval Agency.

## Food Services

Food service for main campus students and staff is located in A-35 and provides a variety of short order meals, snacks and beverages from 7:45 a.m. to 3:30 p.m. weekdays, and from 6-8:30 p.m. Mondays through Thursdays for evening students and staff.

Vending machines are available at all times in the same location and in the Trades building commons area, the Developmental Studies building, the East Campus and the Health Occupations building.

## Housing

T-VI has no dormitories and students must make their own arrangements for housing. However, the Student Activities Office (A-36) has a list of property owners who have contacted the Institute with rentals available to students.



## Safeguarding of Property

A student is responsible for the books and learning materials loaned to him or her and must pay for any which are lost or damaged. Each student is required to make a \$10 textbook deposit at the time he or she enters T-VI. Cost of any books lost or damaged will be deducted from the deposit, and the student will be required to re-deposit the \$10 before being allowed to register for another trimester. The deposit will remain in effect until the student leaves T-VI, at which time it will be refunded upon return of the remaining textbooks checked out to him or her.

Students are also held responsible for any damage to Institute buildings or equipment as a result of misconduct or negligence.

**STUDENT LOCKERS:** Lockers are available in the South Building, Trades Building, West Building, North Building and at the East Campus. A student may make use of any empty locker by simply providing a lock for it. However, the lock must be taken off and possessions removed from the locker the last day of each trimester. Locks remaining on lockers will be cut off and removed during the break between trimesters, and main campus locker contents will be turned over to the Support Services Office, M-103. Unless possessions are claimed in M-103 within 30 days from the end of the trimester, it will be assumed that they have been abandoned and T-VI will dispose of them.

**LOST AND FOUND:** The Main Campus lost and found location is the Student Activities Office, Room A-36. At the East Campus, the counseling office maintains the lost and found.



## Student Records

Permanent records are maintained for each student who attends the Institute. The permanent transcript shows the amount of instruction each student has received, whether course credits are by full completion or waiver, and whether the program of studies was partial or complete. It also records all final grades and/or proficiency ratings earned. Attendance records and the student's original application are also permanent records.

Most students authorize T-VI to provide confidential copies of transcripts to bona fide employers and to other educational institutions as a part of the admissions process.

*A student who does not want the transcript sent to prospective employers or other schools may indicate this at any time on his or her transcript by visiting the Student Records Center.*

A student may examine any and all documents in his or her cumulative records during the normal hours of operation in the Student Records Center. Free copies of attendance records or transcripts will be provided to students and former students at their request.

All other uses of student records will be in accordance with the federal Family Educational Rights and Privacy Act of 1974 and its amendments. Copies of T-VI's procedures for meeting the requirements of this act are posted in the permanent display case in the Student Lounge, and students are urged to read these procedures.

## Attendance

Anyone admitted to T-VI agrees to attend all sessions of every course for which he or she is enrolled as a condition of admission. Attendance is taken every class hour and absences become part of the student's permanent record.

*To be considered a full-time student at T-VI, a person must enroll for no less than the minimum number of hours listed under each trimester of the program descriptions in this catalog.*

While it is recognized that a student who is ill or has a family emergency cannot attend school that day, T-VI does not classify absences as "excused" or "unexcused." The attendance record simply shows how many hours of instruction have been missed, regardless of the reason.

Students who have been absent are responsible for contacting their instructors to arrange for makeup of work missed. Such makeup work will be recorded by the instructor in the grade book.

**TARDIES:** An unauthorized absence of up to 10 minutes of a class, including arriving late or leaving early, is considered as a tardy. An unauthorized absence of more than 10 minutes of a class hour is considered an absence for the entire hour. However, a student may not be kept from attending the remainder of the class hour because of arriving late.

The fifth time a student receives a mark of tardy in any class, the instructor will convert the five tardies to one hour of absence and will report the absence to the Attendance Office. Additional tardies will continue to be charged as absences each fifth time.

**EXCESSIVE ABSENCES:** Students who do not attend classes regularly will be sent a warning letter when absences reach 40 hours in any trimester to let them know that additional absences will endanger their standing at T-VI and will result in loss of financial aid.

**CONDITIONAL ENROLLMENT:** A student whose absences reach 60 hours in any trimester will be placed on Conditional Enrollment status and will no longer be considered in good standing at T-VI. Two things happen when a student is placed on Conditional Enrollment: (1) financial aid is terminated at that point and (2) the student must appear before a Student Review Committee in order to prevent being suspended for the balance of the trimester.

**STUDENT REVIEW COMMITTEE:** A student placed on Conditional Enrollment for excessive absences, or suspended for disruptive behavior, has the right to appeal before a Student Review Committee (SRC) made up of other students.

A Conditional Enrollment student who does not appear before the SRC will be suspended for the balance of the trimester.

Students on Conditional Enrollment who appear before the SRC may explain why the suspension should not be carried out. After hearing the appeal, the SRC

recommends a course of action to the T-VI Vice President, either suspension for the rest of the trimester or continuation of the Conditional Enrollment status, with terms of possible future suspension in the event of further absences or disruptive behavior.

A student who is placed on Conditional Enrollment after the SRC hearing may be suspended for the rest of the trimester if the terms of the SRC probation are violated. At that point, the suspension is not subject to further appeal.

**READMISSION:** A suspended student may apply to re-enter T-VI the following trimester by repeating the regular admissions procedure followed by any other applicant to the Institute.

## Student Services

The Student Services Division provides assistance to applicants, students and graduates in matters related to admissions, testing, counseling and career guidance, attendance accounting, student records and transcripts, student financial aids and job placement.

**COUNSELING AND GUIDANCE:** Professional counselors are ready to help applicants choose a career field and get into the instructional program that will meet their needs. They also advise students about any problems they may be having that keep them from doing their best in T-VI's classes. Both applicants and students should feel free to see a counselor at any time. Counselors and advisors are located in each department and at the East Campus.

**HEALTH AND NURSING SERVICES:** The student health center is located in Room A-127 and is staffed by a Registered Nurse and a secretary trained in first aid procedures. Services available are first aid for minor injuries and emergency assistance for other injuries and illnesses, counseling about any health problems, vision and hearing testing, and information about such problems as venereal disease and drug addiction. The facility has cots available for persons who become ill while attending school.

**JOB PLACEMENT:** Responsibility for finding a job after completing a program at T-VI is up to the graduate. However, the Institute does have a Placement Services office to help. It is located at the Main Campus.

Graduates are urged to use the services of the New Mexico State Employment Service, a public agency which charges no fees and which is the official placement service available to T-VI graduates.

The T-VI Placement Services office maintains files of all graduates who are looking for jobs. This office also has the New Mexico State Employment Service's "job bank" listing of available jobs—a list which is updated daily for use by students or graduates.



## Testing Services

T-VI's Testing Center on the Main Campus provides several services free of charge, including administration of the General Educational Development (GED) examinations for the high school equivalency diploma. Any New Mexico resident 18 years of age or older, who is not a high school graduate but whose high school class has graduated, may apply to take the GED exams in either Spanish or English.

Interested persons are given a brief sample exam to see if they are ready to take the five-part GED examinations. Those who need some study before they are ready for the GED may take free classes either day or evening to prepare for the exams.

Information about the GED testing schedule can be obtained by calling the T-VI Testing Center at 843-7250, extension 217.

The Testing Center also gives tests to applicants to T-VI's full-time programs to help the applicant and counselors determine which T-VI programs may best match the applicant's abilities and aptitudes.

# Standards of Progress

Requirements for graduation in each full-time program are detailed in the Day Division catalog for the academic year when the student entered the program. It is important that each student keep a copy of that year's catalog in order to be able to check whether all of the graduation requirements are being met.

Diplomas or certificates of completion are given to students who successfully complete all of the requirements listed under the program descriptions in the catalog. Some programs have different exit levels and different certificates can be awarded for completing different levels.

**GRADE REPORTS:** Progress reports are given each student at the midpoint and end of each trimester or unit of study. Final progress reports become part of the student's permanent records at T-VI.

Some classes at T-VI use letter grades in the progress reports: "S" (Satisfactory), "A" (Excellent), "B" (Above Average), "C" (Average), "I" (Incomplete) and "U" (Unsatisfactory). Minimum grades for which credit is granted are "C" or "S."

Other courses at T-VI use proficiency ratings. In these classes, performance objectives are clearly defined, and the student receives progress reports detailing the skills mastered which are related to each of the specific objectives for the class. The rating sheets are the progress reports for these classes, and those with sufficient achievement also result in a final grade on the transcript.

A student who receives either an "I" or "U" final grade for a course may not enroll for any other course for which the unsatisfactorily completed course is a prerequisite. An "I" grade may be converted to a credit grade by satisfactorily completing the missing work within the following trimester.

A "U" grade can be made up only by repeating the entire course.

**ACADEMIC PROBATION:** A student who receives an "I" or "U" final report in any course is automatically placed on academic probation for the next trimester in which he or she enrolls and may be terminated from the program at any time he or she is doing less than satisfactory work during the probationary trimester. If, at the end of the probationary trimester, the student again has received an "I" or "U" in any course, the student may not be allowed to continue in the same T-VI program.

**ACADEMIC SUSPENSION:** A student who fails to make satisfactory progress toward a certification goal during the last three trimesters attended will be placed on academic suspension for a period of one year and may not enroll in the Day Division at T-VI during the year of suspension.

**CREDIT BY WAIVER:** Credit toward graduation is usually earned by taking a course and receiving a satisfactory final grade or proficiency rating. However, an applicant or student can also be given waiver credit for any course where he or she can demonstrate the knowledge or skills required for successful completion of the

course. Two types of credit by waiver are available, and application forms are available in all department offices.

The first is by examination, and a person who already has the knowledge and skills to pass the final proficiency tests or examinations for a course may obtain waiver credit for that course by examination. However, a student who has a final grade of "U" in a course may not be given a waiver credit for that course.

The second kind of waiver credit may be given to an outstanding student who gets a full-time training-related job after mid-term grades have been issued in the final trimester of most programs. This waiver will not be given to any student who has unsatisfactory grades, who is on academic probation or who is on Conditional Enrollment status because of absences. The program coordinator or counselor can verify whether or not a student is eligible to apply for this kind of waiver credit.

Both types of waiver credit require the approval of the class instructor, program coordinator, counselor, department chairman and associate director of Student Services. Until all of these approvals are obtained, the student must continue to attend class.

Credit by waiver is considered full and successful completion of the course, meets diploma and certificate requirements, meets prerequisite requirements for advanced courses and is entered on the student's transcript as a completed course.

## Fires

Because of the nature of many activities at T-VI, the potential for fires is greater than in other schools. And fires have occurred in the past, usually as a result of carelessness.

The Institute does not hold fire drills. An evacuation plan for each classroom is located in that room and should be checked at the beginning of the trimester.

Also, the fire alarm is a continuous, loud bell. Everyone must evacuate the T-VI buildings, move well away from the buildings and stay away until an all clear—a series of three bells—has been sounded.

## Telephone Calls and Visitors

Students will not be called from class to receive telephone calls or visitors.

Office phones are for staff use only. Pay phones are located at various places on both campuses for student and visitor use.

# Transportation and Parking

**VEHICLE REGISTRATION:** All vehicles a student plans to drive to school must be registered during the regular T-VI registration. T-VI provides a numbered decal, free of charge, for each vehicle which should be attached to the back side of the rear-view mirror so that it can be seen through the windshield. Window decals are also available for vans or other vehicles without inside rear-view mirrors. On motorcycles, the decal should be put on the rear fender near the license plate or on another clearly visible location if the rear fender location is not possible.

Only vehicles which display a T-VI decal are allowed to park in the Institute parking lots.

Because student parking is limited, students are urged to form car pools and to use city buses whenever possible.

**PARKING LOTS:** Students are advised not to park on public streets or private parking lots near the campus. Cars parked in private lots, or which block the driveway to a home or business, may be towed away at the vehicle owner's expense.

Free student parking lots are available on the south side of Coal Avenue between Buena Vista and University Boulevard, east of the Developmental Studies building and at the East Campus.

The parking lots north of Coal Avenue are for staff and visitor parking only—not for student use.

Cars should be locked at all times and valuables locked in the trunk or hidden from view. T-VI's security service patrols all campus parking lots; but the Institute is not liable for thefts, vandalism or other losses which take place while vehicles are parked on the campus.

Violations of parking regulations will result in citations by the security service, and students receiving three

or more citations will be referred to the Student Government's Student Judicial Affairs and Curriculum Committee, with further action depending upon the committee's recommendation. It can range from a warning to suspension from the Institute. Most common violations are parking on T-VI lots without display of the proper decal, student parking in a staff or visitor zone, blocking a driveway or another vehicle and parking in a "no parking" zone.

**CITY BUS PASSES:** The Albuquerque Transit Department, which operates city buses, has special student passes for full-time post-secondary students which are very economical. Two kinds of passes can be purchased: (1) a trimester pass good for unlimited city bus use for the entire 15 weeks of the trimester for \$28 or (2) a calendar month pass good for unlimited city bus use for the month for \$8.

The trimester passes may be bought at the City Transit Department, 619 Yale SE, with a requirement that a T-VI student identification card be presented. The monthly passes are sold in the office of T-VI's Financial Aids Manager (A-119), East Campus counselors and the City Transit Department.

Students with severe financial needs may apply for financial assistance for the city bus passes through the Financial Aids Manager.

**VALENCIA COUNTY BUS:** A free bus is available to the main campus for students who live in the Belen, Los Lunas and southern Bernalillo County areas. It arrives at T-VI each day in time for first period classes and departs the campus each day after seventh period. Information about routes and time schedules is available from the counseling staff.

## Campus Conduct

Unsafe or disruptive behavior anywhere on the campus, including the parking area, is grounds for dismissal from T-VI. This same guideline applies to any field trip taken under the supervision of a member of T-VI's instructional staff.

**FOOD AND BEVERAGES:** Drinking and eating are prohibited in all classrooms and labs.

**SMOKING:** Not permitted in any classroom, laboratory or shop, smoking is permitted on campus and in the designated area of the student lounge. Each student is expected to keep the campus safe and clean by using the containers provided for smoking litter. Students are also reminded that smoking is hazardous to their health.

**STUDENT DRESS:** Students are to come to class dressed appropriately for the job for which they are training.

Any student or visitor not wearing a shirt or footwear is denied entrance to all buildings on the T-VI campus.

**ANIMALS:** Dogs and other pets are not permitted in any building on the T-VI campus.

**LAW VIOLATIONS:** Violation of laws by anyone on campus will be handled by appropriate law enforcement agencies, just as it would be anywhere else.

**ALCOHOLIC BEVERAGES:** It is against New Mexico law to be in possession of or to drink alcoholic beverages anywhere on the campus, including the parking areas.



# Student Government and Activities

Student self-government at T-VI is in the form of a Student Government composed of up to three Representatives elected by each section of a program at the beginning of each trimester. Their job is to carry the ideas of their fellow students to the weekly Government meetings and to report back after each Government meeting on what is taking place. Service as a Representative is entered on the student's permanent transcript.

The Student Government works in any way possible to make T-VI a better place for both students and staff. It is the channel for expressing student concerns about campus conditions and the instructional program, for helping develop school policies and procedures, and for sponsoring a variety of student activities.

Leadership of the Government is provided by a student body president and vice president, who are elected by the entire student body for two-trimester terms. During 1979-80, elections will be held late in the Fall 1979 and Summer 1980 trimesters.

A faculty advisor attends all Government meetings and serves as the liaison between the Government and the T-VI staff.

All students are welcome to attend any Government meeting. However, motions may be made and voting is only by elected Representatives.

**STUDENT ACTIVITIES:** A limited student activities program is available to interested students and staff members. The Student Government—using funds raised by the coin-operated games in the West Building recreation room—sponsors all-student activities such as dances and picnics.

Other clubs and activities are supported by T-VI's activities budget. The school sponsors various city league athletic teams—basketball, baseball and softball—and various cocurricular and extracurricular clubs.

One important activity is publication of the student newspaper, *The Hemisphere*. Any student interested in working on the newspaper should contact the Student Activities Office in A-36.

An effort is made to establish any type of extracurricular club or activity in which at least 15 students are interested. Such a club or activity can be formed if a faculty or staff member is located to serve as the sponsor and if appropriate facilities can be located at reasonable costs. Persons interested in forming an extracurricular club should contact the Student Activities Secretary in Room A-36.

Facilities at T-VI may be used for student clubs and activities at any time they are not in use for instructional programs (generally after 3:15 p.m.) on the condition that the facilities are left as they were with regard to furniture and equipment placement and cleanliness.

## Financial Aids

Financial help to attend school is available to T-VI students through several federal and state programs. Some of the financial aid is available through agencies, some through the T-VI Financial Aids Office. Each financial aid program has its own purpose and system of determining need and eligibility.

*Those aid programs for which application is made directly to the agency, rather than the T-VI Financial Aids Office, include:*

**VETERANS ADMINISTRATION (VA):** Most full-time programs are approved for VA education and training benefits. In addition to service veterans, persons entitled to benefits include children and widows of deceased veterans and dependents of veterans with 100 percent disability classifications.

However, no person may be approved for VA benefits for refresher training in any course for which he or she already has required skills, regardless of where those skills were learned, without specific VA permission.

Written records of previous education and training are maintained to show that appropriate credit has been given for the previous education and training, with the T-VI training period shortened proportionately.

Information about eligibility for VA education benefits is available at any Veterans Administration office or from the representative of the Albuquerque Regional VA Office stationed on the T-VI Main Campus during daytime hours.

**SOCIAL SECURITY ADMINISTRATION:** Full-time students up to and including 22 years of age who are children of retired, disabled or deceased workers covered by the Social Security and Railroad Retirement Acts are eligible for Social Security support. The Albuquerque office is located at 1816 Carlisle Boulevard NE (phone 766-2531).

**NEW MEXICO DIVISION OF VOCATIONAL REHABILITATION (DVR):** Persons with disabilities may be eligible for education and training assistance from DVR. The Albuquerque office is located at 5600 Domingo Road NE (phone 842-3985).

**OFFICE OF CONCENTRATED EMPLOYMENT TRAINING ADMINISTRATION (OCETA):** Education and training assistance is provided for unemployed, underemployed economically-disadvantaged persons by this federal agency, which has offices located throughout New Mexico. Information is available from the nearest service center of the New Mexico Employment Security Commission. The OCETA Training Control Center in Albuquerque is located at 1500 Walter Street SE.

**BUREAU OF INDIAN AFFAIRS (BIA):** Indian students may be eligible for education and training benefits through the BIA. For information, contact the Albuquerque BIA Office at 1000 Indian School Road NW.

*Those financial aid programs for which application is made through the T-VI Financial Aids Office (Room A-119), open 8 a.m. to 5 p.m. Mondays through Fridays) are:*

**BASIC EDUCATIONAL OPPORTUNITY GRANT (BEOG):** U.S. citizens with financial needs who will be attending a Day Division program of two or more trimesters in length, and who do not already have a degree from another institution, may apply for a federal BEOG. This program provides grants of up to half of the student's instructional costs.

The application form for the BEOG is the College Scholarship Service (CSS) Financial Aid Form. Completed forms are mailed to CSS, whose national service will analyze financial need and assign the applicant an aid index number. If the aid index number shows that the student is entitled to a BEOG, the T-VI Financial Aid Office issues the grant.

There is no charge if the CSS form is being used only to apply for BEOG. The form is available at most high schools and also from T-VI's Financial Aids Office.

The T-VI student eligible for a BEOG will be given equal monthly installments of the grant so long as he or she continues as a student in good standing.

The BEOG is intended to be the base upon which other kinds of financial aid may be added as needed, and a student who has not made a BEOG application cannot be considered for other aids.

During 1978-79, the largest grants for which T-VI students were eligible totaled about \$760 per year for New Mexico residents and \$1,360 for persons paying out-of-state tuition.

**NEW MEXICO STATE STUDENT INCENTIVE GRANT (SSIG):** This state and federally-funded program also provides grants to needy full-time students who must be legal residents of New Mexico. Amount of the SSIG, if the applicant is eligible, is between \$200 and \$500 per year.

Application is by the same process as that described above for the BEOG, plus filling out the "New Mexico Financial Aid and Scholarship Application" form.

**NEW MEXICO STUDENT LOAN (NMSL):** New Mexico residents enrolled in a vocational program of six months or more may apply for a NMSL.

Maximum loans are \$800 per trimester, and no student may receive loans totaling more than \$2,400 in any calendar year.

In addition to having applied for a BEOG, the applicant must also complete additional forms to apply for a NMSL. The forms are available at the T-VI Financial Aids Office in Room A-119 or from a counselor at the Main or East campus.

T-VI students awarded a NMSL must place their loan in an escrow fund. They will then be issued equal monthly installments of their loan as long as they remain in good standing at T-VI. If the student withdraws, or is placed on Conditional Enrollment and is no longer in good standing, the unused part of the NMSL will be refunded to the state and the student will owe only that amount actually issued to him or her.

*The NMSL is a loan and must be repaid by the student after completing or leaving school.*

At least \$30 must be repaid per month and payment must begin within 12 months of the last date school was attended. The loan interest rate is seven per cent per year, but the federal government pays the interest while the student is still in school and during the 12 month period after the student leaves school.

**COLLEGE WORK STUDY (CWS):** Students with severe financial needs, and who meet other federal requirements, may be employed by T-VI during non-class times under the CWS program.

The number of CWS positions available is very small because of limited funds. Those employed may work up to 20 hours per week at \$2.90 per hour. Pay periods are every two weeks.

Applications for CWS are available in the Financial Aids Office or from counselors.

**SCHOLARSHIPS:** A very limited number of small scholarship awards may be made each year from the T-VI Scholarship Fund. They are for one-time emergency needs and usually do not exceed \$50. Eligible are students in good attendance and academic standing. Scholarship application forms are available from all counselors.

**CITY BUS PASSES:** Needy students who ride Albuquerque city buses to and from T-VI may apply for assistance in the form of a monthly postsecondary student City Transit pass.

The passes are provided by T-VI to students whose needs are severe and who have not received other forms of financial aid which are designed to cover transportation costs.

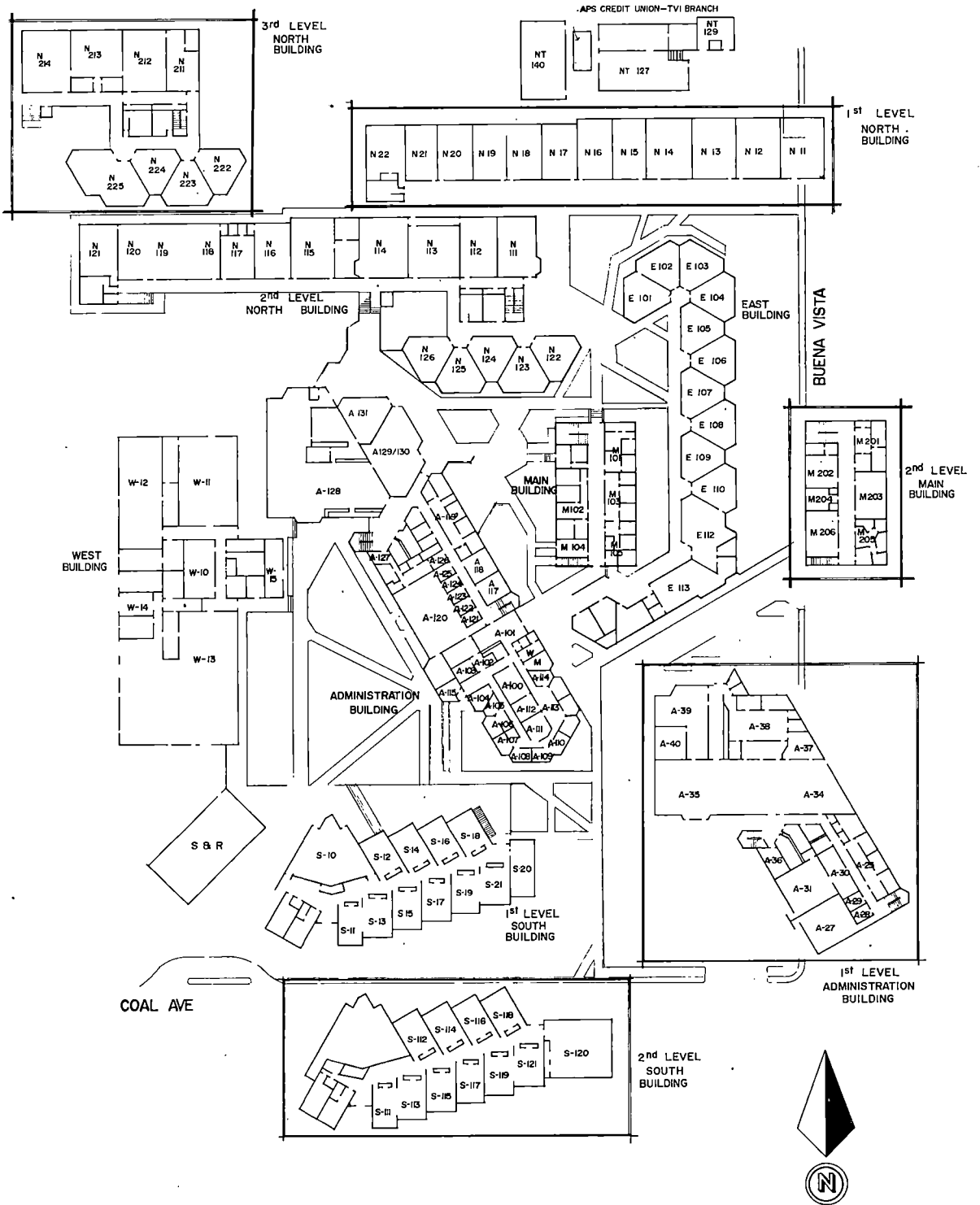
Applications for the city bus pass aid are available in the Financial Aids Office and from counselors.

**TERMINATION OF FINANCIAL AIDS:** T-VI policy for determining that a student is no longer making satisfactory progress and is no longer eligible to receive federally-supported financial aids is as follows:

1. A student who is placed on Conditional Enrollment status because of poor attendance will be regarded as no longer making satisfactory progress and financial aids will be terminated at that point.
2. A student who is making a second change of program at T-VI will be considered as no longer making satisfactory progress and will not be eligible to receive student financial aid to enroll in a third program.
3. A student placed on Academic Suspension will have all student financial aid terminated at that point.

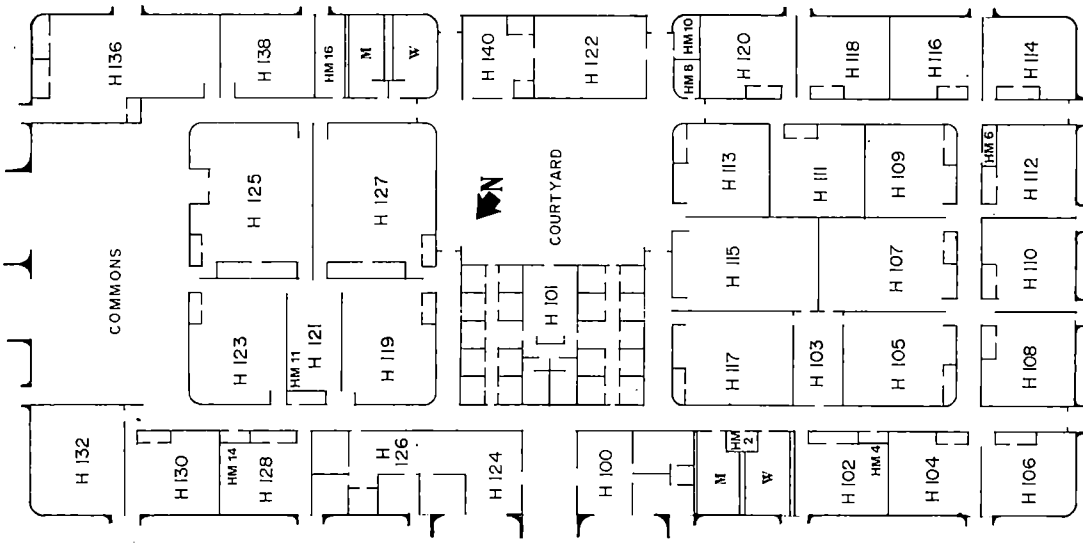
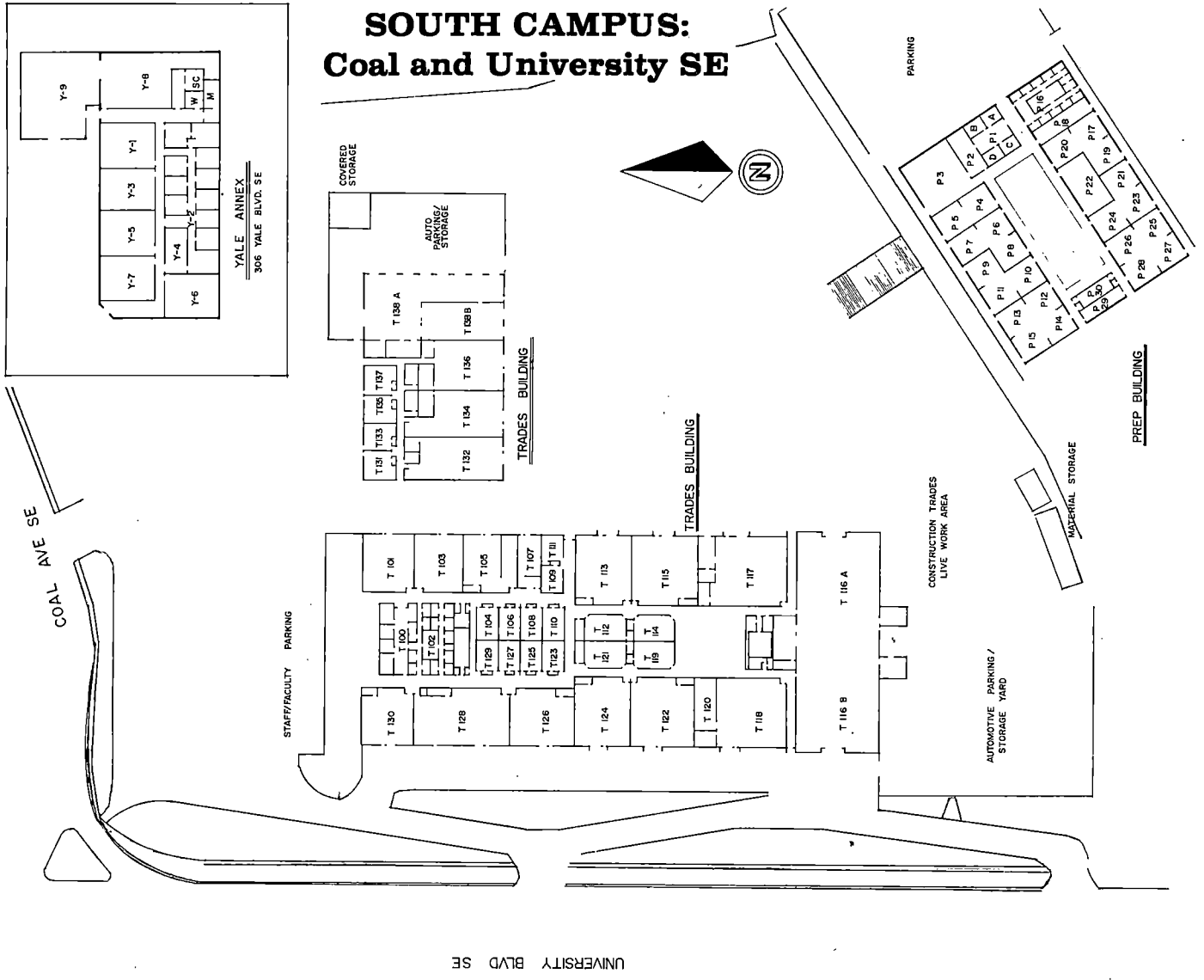
**REINSTATEMENT:** A student terminated from financial aid at T-VI can re-establish eligibility for financial aid by successfully completing all of the required courses listed under one trimester of a full-time program.

# Maps



**MAIN CAMPUS: 525 Buena Vista SE**

# SOUTH CAMPUS: Coal and University SE



# MONTOYA CAMPUS: 4700 Morris NE



## SPECIAL LABS

Several special labs at the Institute make it possible for students and, in some cases, non-students to work at their own pace to learn specific subjects. Materials available range from very simple to more advanced levels.

Students may visit the labs any time they are open and there are no attendance requirements in any of the labs.

### ADULT LEARNING CENTER (ALC)

Part of the Instructional Materials Learning Center, this lab is available for use by the public free of charge.

Learn-at-your-own-speed audio-visual courses are available in a large number of subjects including basic math, algebra, trigonometry, calculus, the metric system, English Grammar, speed reading, spelling, punctuation for office and business, Spanish, French, Italian, real estate practices, accounting fundamentals, basic concepts of data processing and motivation and goal setting.

The lab is open from 8 a.m. to 9 p.m. each weekday except Friday when it closes at 5 p.m. It is also open on Saturdays at different times during the year.

More information is available by calling the lab, 843-7250, ext. 316.

### BUSINESS OCCUPATIONS LEARNING CENTER (BOLC)

More information about this special lab, which includes a large variety of the latest business machines and

special equipment for teaching their use, is on page 27. There is also a BOLC at the Montoya (East) Campus.

Open from 8 a.m. to 5 p.m. each weekday and from 6:30 to 8:30 p.m. Mondays through Thursdays, the BOLC may be used by any adult in the community.

A fee of \$10 per course is charged for persons who are not T-VI Day Division students.

Instructional personnel are in the lab at all times to assist students and may be reached to answer questions about the lab at 843-7250, ext. 226.

### READING LAB

More information about this lab, which is part of the Department of Developmental Studies, is on page 23.

Only persons who are enrolled at T-VI may use this specialized lab but T-VI also offers reading assistance in the Adult Learning Center.

### MATH LAB

The Drop-In Math Lab is located in S-18 with hours from 7:15 a.m. to 4:15 p.m. Monday through Friday. Tutoring and individualized programs are available in basic arithmetic, fractions, decimals, percent, precision measurement, plane geometry, algebra and trigonometry.

Use of this lab is limited to students enrolled in the Day Division. Persons not attending T-VI who need special help in math may use the Adult Learning Center.

# GENERAL EDUCATIONAL DEVELOPMENT (GED)

(High School Equivalency Exam Preparatory)

By taking this course, students without a high school diploma can prepare for the GED test, also known as the high school equivalency exam.

Upon successful completion of the GED exam, the New Mexico Department of Education issues an official high school diploma which is recognized by colleges and universities, labor unions, state and federal agencies and the armed services as an official high school diploma meeting all requirements of the State of New Mexico.

There are no registration, equipment or testing fees required in the GED preparatory course and the GED exams are given free on a scheduled basis to any interested person. All persons requesting the GED program will be pre-tested to determine the classes needed.

Contact the Evening Division office at T-VI concerning registration for the GED. Hours are noon to 9 p.m. on Mondays through Thursdays and 8 a.m. to 5 p.m. on Fridays.

Students may choose either a morning or afternoon schedule which meets three hours a day, five days a week, on the following schedule.

## MORNING SCHEDULE

Mathematics (Monday, Wednesday,  
Friday) ..... 8:15-10 a.m.  
Social Studies/Science (Tuesday,  
Thursday) ..... 8:15-10 a.m.  
English/Spelling/Literature (Monday  
through Friday) ..... 10:15-11:15 a.m.

## AFTERNOON SCHEDULE

Mathematics (Monday, Wednesday,  
Friday) ..... 12:15-2 p.m.  
Social Studies/Science (Tuesday,  
Thursday) ..... 12:15-2 p.m.  
English/Spelling/Literature (Monday  
through Friday) ..... 2:15-3:15 p.m.

Instruction in the GED program will be on an individual approach and students will work at their own speed. When both instructor and student feel that he or she is ready to take the GED exam, arrangements will be made to have it given at the next scheduled testing session.

Another option for GED students is also available for those persons who are not able to attend classes during the day. The T-VI Evening Division also offers GED review classes on Mondays, Tuesdays and Wednesdays from 7 to 9 p.m.



**DEPARTMENT  
OF  
DEVELOPMENTAL  
STUDIES**

# Instructional Materials Center

The Instructional Materials Center (IMC) includes three service areas for use by students, staff and, in some cases, the entire community. They are the Library, Adult Learning Center and Audio-Visual Services. Located on T-VI's main campus, the center is open from 7:45 a.m. to 8:45 p.m. weekdays except Friday when it closes at 5 p.m. The IMC is open on weekends occasionally.

## LIBRARY SERVICES

Library materials may be checked out for home use between 7:45 a.m. and 5 p.m. daily, except on weekends. Many kinds of books, pamphlets, maps, newspapers, magazines, encyclopedias and dictionaries are available which offer information, recreation, new ideas, stories of the past, issues of the day and views to the future. Special collections of learning materials are maintained in all vocational subject areas taught at T-VI.

Additional services include personal assistance in locating materials, instruction in how to use the library, study facilities, inter-library loan, a copy machine, magazine back issues and many other types of assistance designed to provide the information you want when you need it.

## ADULT LEARNING CENTER

ALC services are offered free of charge to any adult in the community who wants to develop basic education skills.

This center also contains materials for persons entering a variety of vocational fields.

Audio-visual materials are used extensively and specially-trained personnel are on duty at all times to help a person develop and pursue his or her individual program of study.

Basic education areas included are English as a Second Language, reading, spelling, English, mathematics, consumer education, Beginning Spanish and human relations.

The vocational component includes audio-visual programs related to electronics, welding, computer systems, metalworking, sales and human relations, and mathematics.

## AUDIO-VISUAL SERVICES

These services, used primarily by staff members, provide delivery, set-up, instruction and maintenance of a variety of audio-visual equipment. Arrangements may be made through this department for production of video tape television programs, slide presentations, audio tape recordings and for rental of films and other audio-visual materials.

# Displaced Homemaker Program

This five-week class is designed for persons who have spent a considerable amount of time in the home and who need or want to go to work or return to school.

The class is offered twice each trimester and meets two hours each day. To accommodate different schedules, the class is offered at different times of the day.

Any interested person may enroll and space is available on a first-come, first-served basis.

The curriculum deals with the positive aspects that occur when a homemaker changes from the home to employment or school, a self-assessment of marketable skills, resumé writing, inter-

viewing techniques, a look at the local job market and community resources, and assistance with personal decisions related to vocational and educational choices.

Discussion, testing, counseling and audio-visual resources are all used as aids in the program.

Following completion of the Displaced Homemaker Program, a student may enter a GED program, the Preparatory Program, a vocational program at T-VI, other educational programs in the community or a job.

Only charge for this class is the regular \$10 preregistration fee at T-VI.



# Preparatory Program

All vocational programs at T-VI require certain math and communications skills for success. Many persons who apply find that they need to improve those skills before they enter a vocational program.

The Preparatory Program helps these students improve in math and communications so that they can meet the entry requirements in a vocational program.

A number of supporting courses are also offered to help students learn about different job fields. Some of the supporting courses teach skills to help a person be more successful in a job, also.

Through individual instruction and counseling, Preparatory students usually are able to enter a vocational program in one trimester, or four months. However, a student may continue in a second trimester of the Preparatory Program if more help is needed.

A student may enter the Preparatory Program anytime during the first 10 weeks of the trimester—or until the classes are full. However, only persons who enter the program at the beginning of a trimester will be eligible to receive Veterans Administration benefits.

Graduation requirements for vocational programs are not met through the Preparatory Program classes. However, attendance and grades in these classes are recorded on permanent T-VI records.

A full-time schedule in the Preparatory Program consists of 20 instructional class hours per week.

Students who are under the sponsorship of a specific agency must take at least 20 hours per week to qualify for full benefits. Other students may take as many classes per week as wanted for their personal needs.

Students attending T-VI in a vocational program may also take any of the courses offered in the Preparatory Program.

## PREPARATORY PROGRAM

<i>Recommended Schedule</i>	<i>Hours/Week</i>
Mathematics .....	10
Communications .....	5
Exploratory .....	5
<i>Students whose reading test scores are low are encouraged to take:</i>	
Reading Improvement .....	5
<i>Supporting Courses*</i>	
Conversational English .....	up to 5
Credit Union Operation .....	5
Enrichment Cluster .....	5
Human Relations .....	5
Introduction to Typing .....	5
Operating Your Own Business .....	5
Thinking Skills Development .....	5

\*Preparatory Program students may also enroll in supporting courses offered in vocational programs if they meet the entrance requirements for the course.

## COURSE DESCRIPTIONS

### Mathematics (10 Hours/Week)

Upon entering the Preparatory Program, the student is placed in the mathematics course that best meets his or her needs, interests or abilities. Each student begins at the start of the program no matter when he or she enters and progresses at his or her own rate with the objective of meeting—or exceeding—entry-level mathematics skills for the vocational field selected. The program begins with basic arithmetic and includes whatever special or advanced topics are needed in that field. All instruction is on an individual basis.

Mathematics courses in the Preparatory Program include foundations (basic arithmetic) and mathematics for Business Occupations, Health Occupations, Technologies, Trades and Culinary Arts.

### Communications (5 Hours/Week)

This refresher course in communications includes skills in writing, speaking, reading and listening. The stress is on vocational applications with special emphasis on the student's intended vocational program.

### Exploratory (5 Hours/Week)

In this course, students can explore the different career fields available at T-VI. A student may change exploratory fields at any time he or she wants to investigate a different career possibility. A student is thus enabled to make a more realistic decision as to a vocational choice.

**Reading Improvement (5 Hours/Week)**

Students in this course receive individual help in the reading lab. Each student takes tests to determine his or her reading level and works only on the reading skills he or she needs. Any student at T-VI may enroll and those having difficulty in reading are advised to enroll.

**Conversational English (up to 5 Hours/Week)**

This course is for persons who have not taken a course in English or who cannot speak any English. It is an informal audit and is not recorded on permanent records. To take this course it is not necessary to be enrolled at T-VI.

**Credit Union Operation (5 Hours/Week)**

This course provides entry-level skills for many credit union jobs. Credit unions are studied in detail, and opportunity is given for students to work in an operating credit union.

**Enrichment Cluster (5 Hours/Week)**

This is a series of units, each meeting five weeks for one hour daily, which can help the student understand and get along better with himself and others, especially in a work situation. The student may choose any three units from the enrichment cluster.

- **How To Study**

Included in this unit are how to take tests and notes, increase study skills, use resource facilities, organize study time and evaluate oneself.

- **Community Services**

In this unit students learn about various agencies in the city through class instruction, speakers, audio-visual materials and field trips.

- **Money Management**

This unit helps the student become a wise buyer and money manager in today's complicated economy.

- **Personal Development**

Emphasis in this unit is on the development of self-awareness in relation to one's environment, ethics, attitudes and the importance of "getting along" in a work situation.

- **First Aid and Personal Safety**

Students may qualify for a three-year Red Cross certificate following this basic first aid course, which is useful to those encountering special safety requirements in a job.

- **Spanish for Beginners**

Conversational Spanish for non-Spanish-speaking students who will be working in a bilingual society is taught in this unit. Information about the Spanish culture and an appreciation of its customs and traditions are included.

- **Vocabulary and Spelling Development**

This unit is for the student who needs to improve spelling abilities and expand written and oral vocabulary.

- **Office Careers**

This class introduces students to office occupations jobs and gives them a basis for choosing one of several career fields. The T-VI Office Occupations program and office jobs will both be reviewed.

**Human Relations (5 Hours/Week)**

Human behavior is explored to help the student develop a more positive attitude. Applications to work situations are stressed.

**Introduction to Typing (5 Hours/Week)**

This course is for students who want or need to learn the skill of typewriting. Students in Business Occupations who have been identified as having probable and/or unique difficulties in learning to type may also enroll. This course is not eligible for Veterans Administration benefits.

**Operating Your Own Business (5 Hours/Week)**

This course provides an introduction to the world of small businesses. Topics reviewed range from personnel and credit management to bookkeeping and income tax for the small business.

**Thinking Skills Development (5 Hours/Week)**

This is a basic course in thinking skills development for those who want to improve their general thinking abilities. Several thought processes will be explored and applied to general problem solving situations, math word problems and group processes.

## Reading Lab

The Reading Lab is a program to help students improve reading skills on an individual basis. It is open to all students at T-VI and is recommended for those students who have reading problems.

Students may enroll at the lab at any time during the trimester. Upon enrollment, each student is tested on various reading skills and then begins work on only those skills which need improvement. Emphasis in the lab is on those reading skills that are needed in the vocational programs at T-VI.

The lab is located in the Department of Vocational Preparation and is open from 9:20 a.m. until 2:15 p.m.

# BUSINESS OCCUPATIONS

## Accounting

### 4 Trimesters

The Accounting Program is an excellent field of study for persons who are looking for a career that is a challenge and has the potential for unlimited personal growth. It is one of the largest programs at T-VI and has an excellent record for placement of graduates.

This program begins with the basic principles of bookkeeping and progresses to more complicated accounting theory. The graduate is prepared for entry-level job opportunities ranging from payroll clerk to full-charge bookkeeper. The potential for advancement into jobs with increasing responsibility is good.

The four-trimester program offers up to 1,800 hours of instruction.

Students may select any of the supporting courses listed which best prepare them for their employment goals. At least one supporting course must be an accounting course. Not all courses will be offered each trimester and a minimum enrollment of 15 students is required for a supporting course to be offered.

Students acquire an employable skill after the successful completion of all courses listed under Trimesters I and II. If for any reason a student must interrupt training after this point, a bookkeeping certificate will be awarded upon request.

A diploma is awarded to those students who complete the required 1,500 hours of instruction of which 525 hours are laboratory work and 975 are related theory. At least one of the supporting courses must be an accounting specialty. All students are given a proficiency certificate for each course completed.

Students attending under the Veterans Administration program may receive only partial benefits when the supervised work experience is in progress during the fourth trimester.

### ACCOUNTING PROGRAM

<i>Trimester I</i>	<i>Hours/Week</i>
Accounting Principles Lab I .....	10
Accounting Math .....	5
Business Communications I .....	5
Typing I .....	5

<i>Trimester II</i>	
Accounting Principles Lab II .....	10
Principles of Data Processing .....	5
Business Communications II .....	5
Typing II (7½ weeks) .....	5
Office Machines (7½ weeks) .....	5

<i>Trimester III</i>	
Intermediate Accounting Lab I .....	10
Tax Accounting .....	5
Supporting Courses .....	10

<i>Trimester IV</i>	
Intermediate Accounting Lab II .....	5
Managerial Accounting .....	5
Supporting Courses .....	15

<i>Supporting Courses</i>	
Accounting Systems Design .....	5
Advanced Accounting .....	5
ANSI COBOL I for Accounting .....	5
ANSI COBOL II for Accounting .....	5
Auditing .....	5
BASIC .....	5
Business Law .....	5
Cashiering .....	5
Cost Accounting .....	5
Credit Union Operations .....	5
Governmental Accounting .....	5
Principles of Economics .....	5
Principles of Management .....	5
Records Management* (7½ weeks) .....	5
RPG II .....	5
Supervised Work Experience .....	10

\*Hours are in addition to diploma requirements.

## COURSE DESCRIPTIONS

### Accounting Principles Lab I (10 Hours/Week)

This is an introductory course on the theory and practice of accounting.

### Accounting Math (5 Hours/Week)

This course covers basic arithmetic operations and familiarizes the student with a wide range of accounting procedures for which mathematics is required.

### Business Communications I (5 Hours/Week)

The student learns to communicate effectively through the study of writing fundamentals. Students will also have the opportunity to develop oral and listening skills.

### Typing I (5 Hours/Week)

Individual instruction permits a student to progress at his own pace. At the end of the course, a beginning student should be able to type a minimum of 25 words per minute.

### Accounting Principles Lab II (10 Hours/Week)

*(Prerequisite: Accounting Principles Lab I)* This is a continuation of Accounting I. Planning of, and accounting for, the partnership and corporate form of business organization is covered. A brief introduction to cost accounting is also included.

Upon successful completion of this course, the student should, with minimum supervision, be a competent bookkeeper for most small business organizations.

### Principles of Data Processing (5 Hours/Week)

This course covers manual and automated information systems, historical development, definitions, planning and recording data in punched cards and other input media, and digital and analog computers.

### Business Communications II (5 Hours/Week)

*(Prerequisite: Business Communications I)* A student completing this course will write effective business letters, reports and memoranda. Continued use of oral communications and listening skills is stressed.

### Typing II (7½ weeks, 5 Hours/Week)

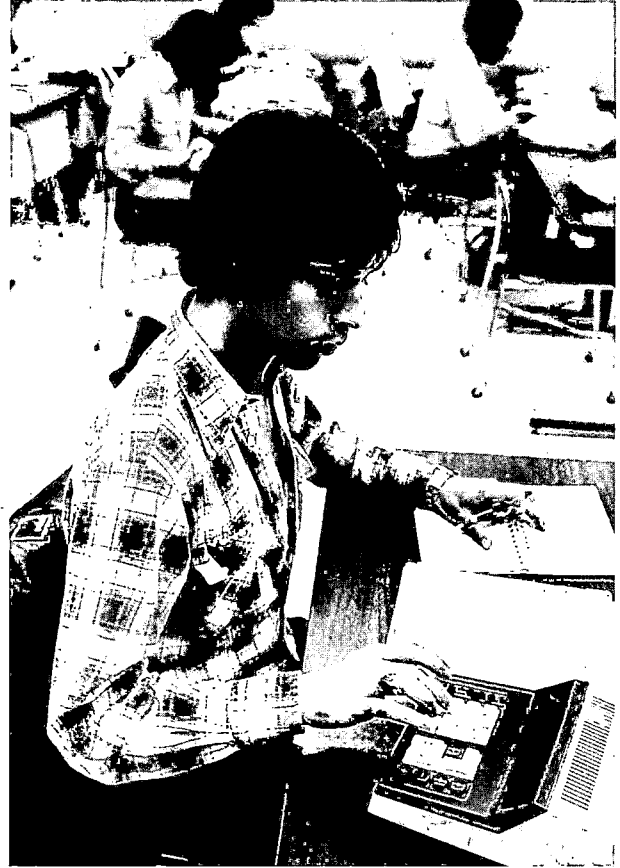
*(Prerequisite: Typing I)* Students type business letters, accounting reports and business forms. Emphasis is on the typing skills the student is most likely to use in an accounting job. Students should be able to type a minimum of 40 words per minute at the end of the course.

### Office Machines (7½ weeks, 5 Hours/Week)

Skill is developed in the touch method of operating the most widely used office machines.

### Intermediate Accounting Lab I (10 Hours/Week)

*(Prerequisite: Accounting Principles Lab II)* This lab emphasizes accounting theory, concepts and their practical application. It focuses attention on the use of accounting data as a basis for decisions by management, stockholders, creditors and other users of financial statements and accounting reports.



### Tax Accounting (5 Hours/Week)

*(Prerequisite: Accounting Principles Lab II)* This course examines the fundamental characteristics of federal income taxes as applied to individuals, partnerships and corporations.

### Intermediate Accounting Lab II (5 Hours/Week)

*(Prerequisite: Intermediate Accounting Lab I)* Accounting for capital stock transactions, dividends, retained earnings, income tax allocation, error correction, long-term investments, amortization schedules, statements from incomplete records, flow of funds statements and analysis and interpretation of financial statements are covered in this course.

### Managerial Accounting (5 Hours/Week)

*(Prerequisite: Accounting Principles Lab II)* This course is basically concerned with how accounting data can be interpreted and used by management in planning and controlling business activities.

### Accounting Systems Design (5 Hours/Week)

*(Prerequisite: Accounting Principles Lab II)* This course deals with the design of a chart of accounts, an accounting manual, flow charts, the system of internal control and reports to management.

**Advanced Accounting (5 Hours/Week)**

(Prerequisite: *Accounting Principles Lab II*) The student learns partnership formation, dissolution and liquidation, consignment and installment sales, home office and branch office operations and business combinations.

**ANSI COBOL I for Accounting (5 Hours/Week)**

(Prerequisite: *Principles of Data Processing*) The student will record transactions, produce reports, develop management data, keep inventories and accounts receivable and other accounting procedures using Structured ANSI COBOL programming.

**ANSI COBOL II for Accounting (5 Hours/Week)**

(Prerequisite: *ANSI COBOL I for Accounting*) The student will continue writing Structured ANSI COBOL programs directly related to the processing of accounting data.

**Auditing (5 Hours/Week)**

(Prerequisite: *Accounting Principles Lab II*) Auditing procedure, reports and working papers used in financial procedure, and reports and working papers used in financial investigations are studied and analyzed. Audit practices with verification of assets, liabilities, expense and revenue accounts are stressed. Internal control techniques are studied with the idea of developing the student's ability to conserve company assets.

**BASIC (5 Hours/Week)**

(Prerequisite: *Principles of Data Processing*) The student will learn how to code, debug, create, update, store

and retrieve accounting programs and data using the BASIC computer language. Maximum use of the conversational computer environment will be utilized.

**Business Law (5 Hours/Week)**

(Prerequisite: *Accounting Principles Lab I*) This course provides a basic knowledge of law as it applies to all business dealings in our society. Particular emphasis is placed on the Uniform Commercial Code. Practical problems in law are considered.

**Cashiering (5 Hours/Week)**

The student learns how to use various cash registers, including the ability to solve procedural problems that occur at a register and checkout station.

**Cost Accounting (5 Hours/Week)**

(Prerequisite: *Accounting Principles Lab II*) This course emphasizes construction and manufacturing as compared to merchandising or service businesses. The student performs the accounting operations for estimating, bidding and application of the materials. Labor and overhead factors of production are studied, and reports are prepared.

**Credit Union Operations (5 Hours/Week)**

This class provides entry-level skills for many credit union jobs. Credit unions are studied in detail, and opportunity is given for students to work in an operating credit union.

**Governmental Accounting (5 Hours/Week)**

(Prerequisite: *Accounting Principles Lab II*) This course provides the student with additional accounting training for government and other non-profit entities.

**Principles of Economics (5 Hours/Week)**

The economic system is studied with emphasis placed on production and distribution, money and banking, governmental fiscal policy and economic conditions in New Mexico.

**Principles of Management (5 Hours/Week)**

An introductory course helping the student develop an understanding of the basic management functions including planning, organizing, staffing, directing and controlling.

**Records Management (7½ weeks, 5 Hours/Week)**

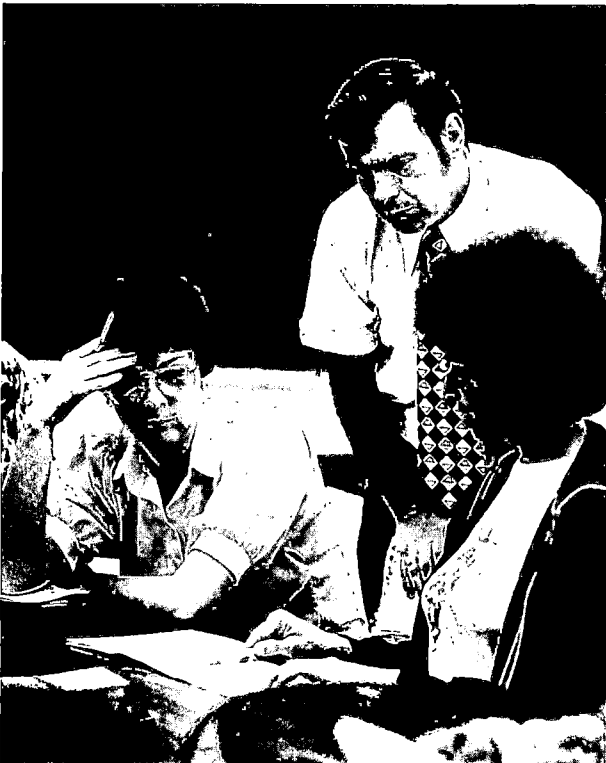
Filing, operational and managerial duties of the office worker are studied in this course.

**RPG II (5 Hours/Week)**

(Prerequisite: *Principles of Data Processing*) This course will introduce the student to the procedures and techniques of processing basic accounting applications using the RPG II programming language.

**Supervised Work Experience (10 Hours/Week)**

(Prerequisite: *Intermediate Accounting Lab I*) Students work a minimum of 150 hours at accounting-related supervised work stations. The student trainee is paid by the cooperating firm and is supervised jointly by T-VI and the cooperating employer.



# Business Occupations Learning Center

The BOLC is designed to serve T-VI students and members of the general public who want to review or learn a particular subject or skill on an individual basis.

Students may begin using this center at any time during the trimester and stop going to the center when personal objectives have been met. Hours are arranged to suit individual needs.

The center is open from 8 a.m. to 5 p.m. weekdays and from 6:30 p.m. to 8:30 p.m. Monday through Thursday.

A fee of \$10 per course is required of students who are not attending T-VI full-time.

Instruction is offered on new equipment including electronic typewriters, electronic office machines, transcribing machines, text-editing typewriters and audio-visual training equipment.

## SUBJECT/SKILL AREAS

### Typing I

Students having no prior formal typing courses are encouraged to enroll in a Typing I course for techniques before entering this area which includes a review of keyboard and basic techniques with instruction on mechanics, letters and tabulation.

### Typing II

(Prerequisite: *Typing I or placement test*) This continuation of Typing I emphasizes speed, accuracy and production.

### Typing III

(Prerequisite: *Typing II or placement test*) This is a continuation of Typing II with more complex production tasks including abstracted tables, line justification and secretarial projects.

### Gregg Shorthand I

All theory and brief forms are learned leading to the ability to read, write and transcribe Gregg Shorthand.

### Gregg Shorthand II

(Prerequisite: *Ability to write Gregg shorthand at 60 words per minute and transcribe into mailable form*) Theory and brief forms are reviewed with emphasis on dictation and transcription.

### Shorthand Review

This course is for students who have typing and shorthand skills but need review and speedbuilding.

### Communications Review

Instruction is in grammar, spelling and punctuation.

### Business Mathematics Fundamentals

This is a review of the fundamental arithmetic operations to build speed and accuracy leading to the use of the percentage formula in solving business problems.

### Business Mathematics II

(Prerequisite: *placement test*) This course includes the mathematics of interest, marketing, payroll and taxes.

### Electronic Calculating

Skill is developed on electronic calculators.

### Accounting Fundamentals

(Prerequisite: *Business Mathematics II or placement test*) This course is designed to give the student a basic understanding of accounting principles and their application.

### Records Management

This area provides basic principles of filing.

### Machine Transcription

Instruction in the use of transcribing machines in the preparation of mailable business correspondence is provided.

### Medical Transcription

(Prerequisite: *Machine Transcription*) This area develops familiarity with medical terminology and transcription.

### Legal Transcription

(Prerequisite: *Machine Transcription*) Familiarity with legal terminology, forms and transcription is developed.

### Word Processing

(Prerequisite: *Demonstrated English and typing skills*) Training is on text-editing, magnetic keyboard typewriters with emphasis on the capabilities and mechanics of the machines.



# Distributive Education

## 1 Trimester

Persons who need to learn a skill quickly and find a job as soon as possible should consider this cashier-sales program. The 15-week program provides up to 225 hours of classroom instruction and a minimum of 150 hours at an approved station for Supervised Work Experience.

The cashier-sales laboratory teaches the skills of salesmanship, cash register operation touch system and human relations.

Operational skills are taught on various makes and models of both electro-mechanical and electronic cash registers as well as produce calculating scales.

It is a course for those preparing for distribution of goods and services to the public, including all retail, wholesale and service occupations. It also is a good place for students to begin who want to explore sales as a possible career.

Applicants are admitted to this program at any time during the trimester when there is a vacancy in the class, and students may leave the program upon completion of their training objective. Students are given proficiency certificates for completing the course.

This program is not eligible for Veterans Administration training benefits.

### DISTRIBUTIVE EDUCATION PROGRAM

<i>Course Requirements</i>	<i>Hours/Week</i>
Cashier-Sales Education .....	15
Supervised Work Experience .....	10-20

### COURSE DESCRIPTIONS

#### Cashier-Sales Education Lab (15 Hours/Week)

Learning the techniques of operating the cash register is a skill subject and this instruction and drill normally take place every day. Merchandising math, store salesmanship and retailing are also covered.

#### Supervised Work Experience (10-20 Hours/Week)

Students work a minimum of 150 hours at retailing-related, teacher-approved work stations. The student trainee is paid by the cooperating employer and is supervised jointly by T-VI and the cooperating employer. There are times when it is impossible to place all students in work stations because of local employment requirements.



# Fashion Merchandising

## 2 Trimesters

The Fashion Merchandising Program is a good beginning for men and women interested in selling, buying, planning, promoting and coordinating fashion apparel, accessories and related items.

Merchandising organizations such as department stores, retail chains and specialty stores provide employment opportunities for persons in sales with a specialized fashion background.

Entry-level jobs range from retail salesworkers to assistant department managers. Some graduates have been promoted to store managers and fashion coordinators.

The fashion lab is equipped with mannequins, various display furniture and related fashion items. Electronic and electro-mechanical cash registers are also used.

Students acquire a basic employable skill upon satisfactory completion of all courses offered first trimester. If a student leaves for a full-time training-related job after this point, a Sales Certificate may be awarded.

Students may continue specializing in Fashion Merchandising or may change their emphasis to Sales Management during the second trimester.

The two-trimester program offers up to 900 hours of instruction. To earn a diploma, a student must successfully complete a total of 750 hours of which 150 are laboratory work and 600 are related theory. All students are given a proficiency certificate for each course completed. Participation in a "seminar of work" is required of students electing to waiver to a training-related job after mid-term of the last trimester.

Students may select any of the supporting courses listed which best prepares them for their employment goals. Not all courses will be offered each trimester, and a minimum enrollment of 15 students is required for a supporting course to be offered.

## FASHION MERCHANDISING PROGRAM

<i>Trimester I</i>	<i>Hours/Week</i>
Principles of Salesmanship Lab .....	5
Introduction to Business .....	5
Merchandising Math .....	5
Sales Communications .....	5
Visual Merchandising .....	5
Supporting Courses .....	0-5

## *Trimester II*

Fashion Concepts Lab .....	5
Textiles (7½ weeks) .....	5
Fashion Techniques (7½ weeks) .....	5
Principles of Fashion Retailing .....	5
Supporting Courses .....	10-15

## *Supporting Courses*

Advanced Sales Management .....	5
Basic Accounting .....	5
Business Law .....	5
Cashiering .....	5
Fashion Show Development (7½ weeks) .....	5
Human Relations (7½ weeks) .....	5
Men's Fashions .....	5
Principles of Data Processing .....	5
Principles of Economics .....	5
Principles of Management .....	5
Principles of Marketing .....	5
Supervised Work Experience .....	*
Typing I .....	5

\*Hours are in addition to diploma requirements.

## COURSE DESCRIPTIONS

### **Principles of Salesmanship Lab (5 Hours/Week)**

The principles, facts and techniques of selling are explored along with the development of communications and human relations skills.

### **Introduction to Business (5 Hours/Week)**

The structure of business, its activities and problems are surveyed in this course. It also provides an understanding of the nature of the business world and its career opportunities.

### **Merchandising Math (5 Hours/Week)**

This course is a review of arithmetic fundamentals, equations, percent, commercial discounts, markup, markdown and turnover.

### **Sales Communications (5 Hours/Week)**

This course builds listening and speaking skills. Writing, spelling and vocabulary building are included.

### **Visual Merchandising (5 Hours/Week)**

Emphasis is on display of merchandise in relation to the store interior, layout and merchandise sold. Emphasis is on display themes, organization, techniques and practical application.

### **Fashion Concepts Lab (5 Hours/Week)**

Material covered includes terminology, fashion history, design factors, basic apparel, accessory styles, clothing details and careers in fashion.

### **Textiles (7½ weeks, 5 Hours/Week)**

This course concentrates on the study of fibers and fabrics.



**Fashion Techniques (7½ weeks, 5 Hours/Week)**

This course involves the student in the coordination and merchandising of fashion, including buying, styling and trend reporting.

**Principles of Fashion Retailing (5 Hours/Week)**

This course is designed to cover store operations, merchandising techniques and cashiering procedures.

**Advanced Sales Management (5 Hours/Week)**

This course includes the techniques of professional selling and the motivating and managing of salespersons.

**Basic Accounting (5 Hours/Week)**

Instruction is provided in accounting fundamentals. Included are the accounting cycle, accounting statements and the principles of journalizing and posting.

**Business Law (5 Hours/Week)**

This course provides a basic knowledge of law as it applies to all business dealings in our society. Particular emphasis is placed on the Uniform Commercial Code. Practical problems in law are considered.

**Cashiering (5 Hours/Week)**

The student learns how to use various cash registers, including the ability to solve procedural problems that occur at the register and check-out station.

**Fashion Show Development (7½ weeks, 5 Hours/Week)**

This course covers the fashion show as a promotional device.

**Human Relations (7½ weeks, 5 Hours/Week)**

This course provides situations for self development and for the study of human behavior.

**Men's Fashions (5 Hours/Week)**

This course is for those desiring a career in men's clothing sales. The theories of men's fashion acceptance, clothing, accessory items and size ranges, correct fitting and coordination are included.

**Principles of Data Processing (5 Hours/Week)**

This introductory course covers manual and automated information systems, historical development, definitions, planning and recording data in punched cards and other input media, and digital and analog computers.

**Principles of Economics (5 Hours/Week)**

The economic system is studied with emphasis placed on production and distribution, money and banking, governmental fiscal policy and economic conditions in New Mexico.

**Principles of Management (5 Hours/Week)**

This introductory course helps the student develop an understanding of the basic management functions, including planning, organizing, staffing, leading and controlling.

**Principles of Marketing (5 Hours/Week)**

This lab is designed to study the total marketing picture, from the production of goods to the potential customer, from a management point of view.

**Supervised Work Experience**

(Prerequisite: *Fashion Merchandising I classes*) Students may work a minimum of 75 hours in a sales-related supervised work situation. The trainee is paid by the cooperating firm and is supervised jointly by T-VI and the cooperating employer. The work experience is in addition to the diploma requirements.

**Typing I (5 Hours/Week)**

Individual instruction permits a student to progress at his own pace. At the end of the course, a beginning student should be able to type a minimum of 25 words per minute.

# Office Occupations

## 3 Trimesters

Career opportunities in office occupations are unlimited. More and more businesses are actively looking for office workers—both men and women—who have the potential to be promoted to administrative positions. The office worker has a choice of many fields in which to work: legal, medical, governmental, technical, service and educational.

Since office workers represent their employers and companies, it is important that persons in this field enjoy working with people. They should also be interested in routine office work.

The Office Occupations program provides students with skills through which they can gain employment in receptionist, clerical, clerk-typist and typist positions. In addition, the program provides supporting courses beyond the required courses which will qualify graduates for secretarial and stenographic entry positions.

Students acquire an employable skill upon successful completion of the first trimester. If a student withdraws from school for full-time training-related work, a Clerical or Secretarial Certificate may be awarded.

The program provides up to 1,125 hours of instruction. An additional 225 hours of supporting courses may be taken. To earn a Diploma in Clerical Occupations, a student must successfully complete a total of 1,125 hours of which 450 are laboratory work and 675 are related theory. Those who also complete the requirements for Transcription (Shorthand III) will receive a Diploma in Secretarial Occupations.

Proficiency certificates are presented to students for each course completed.

Office Occupations labs and classrooms contain modern equipment including electric typewriters exclusively, electronic calculators, transcribing machines, text editing typewriters and individualized learning equipment.

An entering student who has a strong background in clerical or secretarial skills may waive any course by examination and may substitute a more advanced course or add a supporting course.

## OFFICE OCCUPATIONS PROGRAM

<i>Trimester I</i>	<i>Hours/Week</i>
Typing Lab I . . . . .	10
Office Communications I . . . . .	5
Business Mathematics . . . . .	5
Fundamentals of Business . . . . .	5

<i>Trimester II</i>	<i>Hours/Week</i>
Typing Lab II . . . . .	10
Office Communications II . . . . .	5
Secretarial Accounting . . . . .	5
Office Machines (7½ weeks) . . . . .	5
Records Management (7½ weeks) . . . . .	5

<i>Trimester III</i>	<i>Hours/Week</i>
Typing Lab III . . . . .	10
Office Communications III . . . . .	5
Fundamentals of Data Processing . . . . .	5
Business Relations . . . . .	5

### *Supporting Courses*

ANSI COBOL I . . . . .	5
BASIC . . . . .	5
Business Law . . . . .	5
Cashiering . . . . .	5
Principles of Economics . . . . .	5
Principles of Management . . . . .	5
RPG II . . . . .	5
Shorthand I . . . . .	5**
Shorthand II . . . . .	5**
Transcription (Shorthand III) . . . . .	5**
Word Processing (7½ weeks) . . . . .	5

\*Will be an additional course each day.

\*\*Required for a Secretarial Diploma.

## COURSE DESCRIPTIONS

### **Typing Lab I (10 Hours/Week)**

This course builds the student's skills to a typing proficiency of at least 40 words per minute. The student practices typing of business letters, memos, business forms and manuscripts.

### **Office Communications I (5 Hours/Week)**

This is an introduction to oral and written communications with emphasis placed on vocabulary building, spelling, grammar, punctuation, oral expression and listening skills.

**Business Mathematics (5 Hours/Week)**

This is a thorough review of mathematical fundamentals and their application in solving business problems.

**Fundamentals of Business (5 Hours/Week)**

This is an introduction to business organization and operation, including banking, insurance, credit and economic concepts.

**Typing Lab II (10 Hours/Week)**

(*Prerequisite: Typing Lab I*) Typing competence of at least 50 words per minute is the goal of this course. Students produce mailable business letters, manuscripts, tables, business forms and other correspondence.

**Office Communications II (5 Hours/Week)**

(*Prerequisite: Office Communications I*) This course is a continuation of Office Communications I with greater emphasis on punctuation and sentence and paragraph construction.

**Secretarial Accounting (5 Hours/Week)**

(*Prerequisite: Business Mathematics*) This course is a study of the complete bookkeeping cycle, including preparation of the balance sheet, income statement and worksheet. Emphasis is placed on journalizing and posting to the general ledger and posting from the combined cash journal. Payroll accounting is also covered.

**Office Machines (7½ weeks, 5 Hours/Week)**

(*Prerequisite: Business Mathematics*) Skill is developed on the most widely used office machines.

**Records Management (7½ weeks, 5 Hours/Week)**

This course involves basic principles and management procedures of filing.

**Typing Lab III (10 Hours/Week)**

(*Prerequisite: Typing II*) This course provides continued development of typing skills including legal, medical and technical typing. The typing goal is a speed of 60 words per minute.

**Office Communications III (5 Hours/Week)**

(*Prerequisite: Office Communications II*) Principles of writing and composing of business correspondence are covered. Continued emphasis is placed on grammar, punctuation, spelling, and oral communication and listening skills.

**Fundamentals of Data Processing (5 Hours/Week)**

Basic data processing terminology, preparation of source data (including key-punch) for processing and other aspects of automation are covered.

**Business Relations (5 Hours/Week)**

(*Graduating Office Occupations students only.*) Office procedures, human relations and job preparation are included in this course.

**ANSI COBOL I (5 Hours/Week)**

(*Prerequisite: Fundamentals of Data Processing*) The student will record transactions, produce reports, develop management data, keep inventories and accounts receivable and other accounting procedures using Structured ANSI COBOL I programming.

**BASIC (5 Hours/Week)**

(*Prerequisite: Fundamentals of Data Processing*) The student will learn how to code, debug, create, update, store and retrieve accounting programs and data using the BASIC computer language. Conversational computers will be used.

**Business Law (5 Hours/Week)**

This course provides a basic knowledge of law as it applies to all business dealings in our society. Particular emphasis is placed on the Uniform Commercial Code. Practical problems in law are considered.

**Cashiering (5 Hours/Week)**

Use of various cash registers, including the ability to solve procedural problems that occur at a register and checkout station, is developed in this course.

**Principles of Economics (5 Hours/Week)**

The economic system is studied with emphasis placed on production and distribution, money and banking, governmental fiscal policy and economic conditions in New Mexico.

**Principles of Management (5 Hours/Week)**

This introductory course helps the student develop an understanding of the basic management functions, including planning, organizing, staffing, directing and controlling.

**RPG II (5 Hours/Week)**

(*Prerequisite: Fundamentals of Data Processing*) This course will introduce the student to the procedures and techniques of processing basic accounting applications using the RPG II programming language.

**Shorthand I [Gregg] (5 Hours/Week)**

This introductory course covers the theory and writing of Gregg shorthand. A writing speed of 50 words per minute is attained upon completion of the course.

**Shorthand I [Alphabetic] (5 Hours/Week)**

Reading and writing of ABC Stenoscrypt shorthand is learned. A writing speed of 50 words per minute is achieved upon completion of the course.

**Shorthand II (5 Hours/Week)**

(*Prerequisite: Shorthand I*) The ability to write shorthand at a rate of 70 words per minute is sought with emphasis placed on speed, accuracy, grammar and punctuation as well as transcription speed.

**Transcription [Shorthand III] (5 Hours/Week)**

(*Prerequisite: Shorthand II*) Goal for this course is a minimum dictation speed of 80 words per minute on new materials and transcription at a minimum rate of 20 words per minute.

**Word Processing (7½ weeks, 5 Hours/Week)**

(*Prerequisite: Office Communications I and II, Typing II and skill in machine transcription*) Students receive instruction in the use of text-editing, magnetic keyboard typewriters with emphasis on the capabilities and mechanics of the machines.

# Real Estate

The Real Estate courses are designed for persons currently in real estate careers and allied fields and for persons contemplating entering the profession. All courses have been approved by the New Mexico Real Estate Commission for licensing and recertification. Classes are not eligible for Veterans Administration benefits.

Classes scheduled on Mondays and Wednesdays or Tuesdays and Thursdays meet in the evening for 2½ hours per session for six weeks. Saturday classes meet for five hours each Saturday for six weeks. Beginning dates for each class series are listed below.

Each class will be offered if 20 or more persons are enrolled. There is a \$3 preregistration fee per trimester plus the cost of a textbook purchase.

## Real Estate Practice

Fall: September 10, MW  
October 22, MW  
September 22, S  
Winter: January 7, MW  
February 18, MW  
Summer: May 5, MW  
June 23, MW  
May 17, S

## Real Estate Law

Fall: September 10, MW  
October 22, MW  
November 3, S  
Winter: January 7, MW  
February 18, MW  
Summer: May 5, MW  
June 23, MW  
June 28, S

## Real Estate Appraisal

Fall: September 11, TTh  
October 23, TTh  
Winter: January 8, TTh  
February 19, TTh  
January 19, S  
Summer: May 6, TTh  
June 24, TTh

## Real Estate Finance

Fall: September 11, TTh  
October 23, TTh  
Winter: January 8, TTh  
February 19, TTh  
March 1, S  
Summer: May 6, TTh  
June 24, TTh

## Real Estate Investment

Fall: September 10, MW  
September 22, S  
Winter: January 7, MW  
January 19, S

## COURSE DESCRIPTIONS

### Real Estate Practice

This course covers all aspects of the field in general and is planned for those individuals who need to review and for those desiring a basic knowledge of the real estate business.

### Real Estate Law

The course is designed to establish in the student's mind the rights and obligations of the real estate agent with regard to contractual and fiduciary duties owed to the parties represented. Major topics include Ownership Rights, Law of Agency and Law of Contracts.

### Real Estate Appraisal

An introduction to accepted methods for estimating the value of real property, this course covers fundamentals of real estate appraisal of both land and improved property and techniques used by professional appraisers.

### Real Estate Finance

This is a study of methods of financing real property, the money market, sources and cost determinants of mortgage money, financial leverage, value of existing mortgages in relation to the current market and purchaser qualification.

### Real Estate Investment

*(Prerequisite: Real Estate Practice and Real Estate Law)* This class provides the background necessary to understand the fundamentals of real estate investment. Major topics include methods of financing investment real estate, tax advantages, projected income potential and preparation and evaluation of real estate analysis forms.

# Refresher Course for Office Workers

The Refresher Course is for persons who need a review of office skills and procedures in order to go back to work. Students entering this program must have a minimum of two years full-time secretarial or general office experience.

Students may enter this program as space is available and may leave upon completion of their training objective. Students are awarded a proficiency certificate showing their achievements, and special recognition is given those completing the program.

This is an individualized course of study in which a student progresses at his or her own rate with special emphasis on particular areas that

need review and improvement. Students attend class four hours a day, five days a week, for a maximum of 15 weeks (300 class hours).

Review is given in typewriting, shorthand, machine transcription, office machines, English, mathematics, filing, human relations and job preparation.

All work is on the most modern electric typewriters, electronic calculators and dictation equipment.

This program is not eligible for Veterans Administration benefits.

## REFRESHER COURSE PROGRAM

	<i>Hours/Week</i>
Typing Review .....	} 20
Shorthand Review .....	
Office Machines .....	
Communications Review .....	
Business Mathematics Review .....	
Filing Review .....	
Human Relations/Job Preparation .....	

## COURSE DESCRIPTIONS

### Typing Review

Letter styles, memoranda, tabulations and manuscripts are reviewed as well as typewriter operation and care. Speed and accuracy are stressed.

### Shorthand Review

Shorthand theory will be reviewed with emphasis on dictation and transcription.

### Office Machines

Skill is built on ten-key adding machines and calculators that reinforce practical application of business mathematics. Practice is also given on transcription machines.

### Communications Review

Review covers both written and oral communication. Emphasis is placed on punctuation, grammar, letter writing and telephone communication.

### Business Mathematics Review

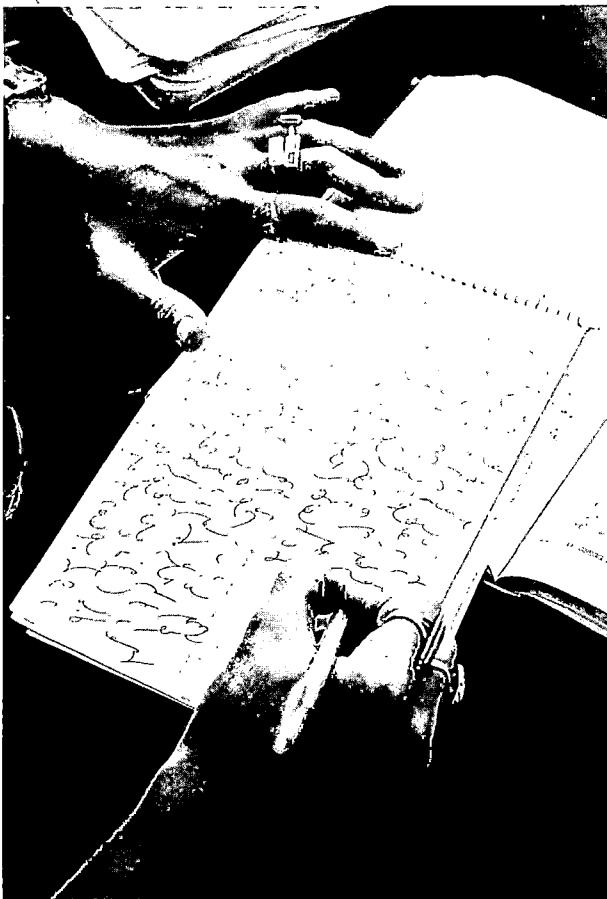
Emphasis is on review of basic mathematical computation that will easily be transferred to office machines.

### Filing Review

A review of procedures and methods of filing.

### Human Relations/Job Preparation

Office procedures, human relations and job preparation are covered.



# Sales Management

## 2 Trimesters

The Sales Management Program is for those persons interested in the huge field of retailing and sales or for those who want to go in business for themselves. Graduates are prepared for employment as management trainees in small businesses, variety and discount stores, large department stores, specialty stores and professional selling.

The sales lab is equipped with mannequins and a wide selection of display furniture and fixtures. Electronic and electro-mechanical cash registers are also utilized.

The two-trimester program offers up to 750 hours of instruction in promotion of goods and services, buying, pricing, stock control and salesmanship. Additional background and understanding come from offerings in business mathematics, accounting, marketing and principles of management. Students may continue specializing in Sales Management or may change their emphasis to Fashion Merchandising during the second trimester.

Students acquire a basic employable skill upon satisfactory completion of all courses offered the first trimester. If a student leaves for a full-time training-related job after this point, a Sales Certificate may be awarded. To earn a diploma, a student must successfully complete a total of 750 hours of which 150 are laboratory work and 600 are related theory.

All students are given a proficiency certificate for each course completed. Participation in a "seminar of work" is required of students electing to waiver to a training-related job after mid-term of the last trimester.

Students may choose any of the supporting courses listed which best prepare them for their employment goals. Not all courses will be offered each trimester, and a minimum enrollment of 15 students is required for a supporting course to be offered.



## SALES MANAGEMENT PROGRAM

<i>Trimester I</i>	<i>Hours/Week</i>
Principles of Salesmanship Lab .....	5
Introduction to Business .....	5
Merchandising Math .....	5
Sales Communications .....	5
Visual Merchandising .....	5

<i>Trimester II</i>	<i>Hours/Week</i>
Principles of Management .....	5
Principles of Marketing Lab .....	5
Merchandising (7½ weeks) .....	5
Store Operations (7½ weeks) .....	5
Supporting Courses .....	10

<i>Supporting Courses</i>	
Advanced Sales Management .....	5
Basic Accounting .....	5
Business Law .....	5
Cashiering .....	5
Fashion Concepts .....	5
Fashion Show Development (7½ weeks) .....	5
Human Relations (7½ weeks) .....	5
Men's Fashions .....	5
Principles of Data Processing .....	5
Principles of Economics .....	5
Supervised Work Experience .....	*
Textiles (7½ weeks) .....	5
Typing I .....	5

\*Hours are in addition to diploma requirement.

## COURSE DESCRIPTIONS

### Principles of Salesmanship Lab (5 Hours/Week)

The principles, facts and techniques of selling are explored along with the development of communications and human relations skills.

### Introduction to Business (5 Hours/Week)

The structure of business, its activities and problems are surveyed in this course. It also provides an understanding of the nature of the business world and its career opportunities.

### Merchandising Math (5 Hours/Week)

This course is a review of arithmetic fundamentals, equations, percent, commercial discounts, markup, markdown and turnover.

### Sales Communications (5 Hours/Week)

This course builds listening and speaking skills. Writing, spelling and vocabulary building are included.

### Visual Merchandising (5 Hours/Week)

Emphasis is on display of merchandise in relation to the store interior, layout and merchandise sold. Emphasis is on display themes, organization, techniques and practical application.

### Principles of Management (5 Hours/Week)

This introductory course helps the student develop an understanding of the basic management functions, including planning, organizing, staffing, leading and controlling.

### Principles of Marketing Lab (5 Hours/Week)

This lab is designed to study the total marketing picture, from the production of goods to the potential customer, from a management point of view.

### Merchandising (7½ weeks, 5 Hours/Week)

The areas covered include ordering, receiving, pricing, marking, promoting and selling to the customer.

### Store Operations (7½ weeks, 5 Hours/Week)

Store locations and store layout are emphasized along with such operational concerns as employee training, customer services, security, inventory and financial control.

### Advanced Sales Management (5 Hours/Week)

This course will include the techniques of professional selling and the motivating and managing of salespersons.

### Basic Accounting (5 Hours/Week)

Instruction is provided in accounting fundamentals. Included are the accounting cycle, accounting statements and the principles of journalizing and posting.

### Business Law (5 Hours/Week)

This course provides a basic knowledge of law as it applies to all business dealings in our society. Particular

emphasis is placed on the Uniform Commercial Code. Practical problems in law are considered.

### Cashiering (5 Hours/Week)

The student learns how to use various cash registers, including the ability to solve procedural problems that occur at the register and check-out station.

### Fashion Concepts (5 Hours/Week)

Material covered includes terminology, fashion history, design factors, basic apparel, accessory styles, clothing details and careers in fashion.

### Fashion Show Development (7½ weeks, 5 Hours/Week)

This course will cover the fashion show as a promotional device.

### Fashion Techniques (7½ weeks, 5 Hours/Week)

This course involves the student in the coordination and merchandising of fashion, including buying, styling and trend reporting.

### Human Relations (7½ weeks, 5 Hours/Week)

This course will provide situations for self development and for the study of human behavior.

### Men's Fashions (5 Hours/Week)

This course is for those desiring a career in men's clothing sales. The theories of men's fashion acceptance, clothing, accessory items and size ranges, correct fitting and coordination are included.

### Principles of Data Processing (5 Hours/Week)

This introductory course covers manual and automated information systems, historical development, definitions, planning and recording data in punched cards and other input media, and digital and analog computers.

### Principles of Economics (5 Hours/Week)

The economic system is studied with emphasis placed on production and distribution, money and banking, governmental fiscal policy and economic conditions in New Mexico.

### Supervised Work Experience

*(Prerequisite: Sales Management I classes)* Students work a minimum of 75 hours in a sales-related supervised work situation. The trainee is paid by the cooperating firm and is supervised jointly by T-VI and the cooperating employer. The work experience is in addition to the diploma requirements.

### Textiles (7½ weeks, 5 Hours/Week)

This course concentrates on the study of fibers and fabrics.

### Typing I (5 Hours/Week)

Individual instruction permits a student to progress at his own pace. At the end of the course, a beginning student should be able to type a minimum of 25 words per minute.

# Small Business Operation

1 Trimester

## COURSE DESCRIPTIONS

The Small Business Operation program is designed for persons who plan to open a small business and for persons owning or managing a small business who are interested in further training. The program places special emphasis on areas directly affecting the businessman in his day-to-day operation. Courses will be tailored to the specific needs of the enrollees.

All students completing the 600 hour program will be issued a certificate.

The program is offered during the Summer and Winter trimesters only.

### SMALL BUSINESS OPERATION PROGRAM

<i>Course Requirements</i>	<i>Hours/Week</i>
Business Law .....	.5
Retailing/Salesmanship .....	.5
Accounting .....	.5
Management .....	.5

#### Business Law (5 Hours/Week)

This class provides a basic knowledge of law as it applies to small business dealings. Emphasis is placed on commercial transactions, contracts, commercial paper, personal property insurance and the Uniform Commercial Code.

#### Retailing/Salesmanship (5 Hours/Week)

This course covers the merchandising functions of buying, pricing, sales promotion, advertising and how these functions apply to small business operations. Human relations, public relations, communications and the steps of selling will be covered.

#### Accounting (5 Hours/Week)

The first ten weeks will provide an insight into the theory and practice of accounting as it relates to the small business. The ability to read and interpret financial statements will be stressed. The last five weeks will be concerned primarily with how to acquire the necessary local, state and federal licenses; employer's tax numbers; and tax report procedures.

#### Management (5 Hours/Week)

The techniques involved in the development of individual business plans and the procedures necessary to implement these plans will be covered.

Management techniques for the small business owner or manager will be reviewed with emphasis on the hiring and training of employees and credit and collection procedures.





# CULINARY ARTS

## Baking

### 2 Trimesters

This specialty in the food service field will prepare persons for jobs as bakers in restaurants, bake shops, bakeries and institutional kitchens, such as schools or hospitals. Persons entering this field should be early-risers since most baking begins early in the morning.

The program is housed in a lab, specifically designed for baking, which contains ovens, display cases, commercial mixers, doughnut machines, dough dividers, refrigerated display cases, proofing cabinets, dough sheeters and many other equipment items used in the baking industry.

This eight-month program provides up to 900 hours of instruction of which 600 are laboratory work and 300 hours are supporting courses. Students may leave the program when a training objective is reached and receive a rating sheet detailing the skills mastered. To earn a diploma, a student must successfully complete a total of 750 hours of which 600 are laboratory work and 150 are related theory.

Baking students must pay an equipment fee of \$80 to cover the cost of special baking utensils and uniforms.



### ENTRANCE REQUIREMENTS

1. Must make an acceptable score on a mathematics test.
2. Must be free of chronic allergies to detergents and soap.
3. Health Requirement: To enroll in this program, it is necessary to present a certificate to T-VI stating that the student is free from tuberculosis in a transmissible form. The certificate must be obtained and signed by a licensed physician no more than 90 calendar days prior to the beginning of the program.

## CULINARY ARTS BAKING

<i>Trimester I</i>	<i>Hours/Week</i>
Baking Lab I .....	20
Baking Theory and Merchandising I .....	5
Supporting Courses .....	0-5
<i>Trimester II</i>	
Baking Lab II .....	20
Baking Theory and Merchandising II .....	5
Supporting Courses .....	0-5
<i>Supporting Courses</i>	
Basic Accounting Principles .....	5
Cashiering .....	2
Industrial Safety .....	3
Salesmanship .....	3

### COURSE DESCRIPTIONS

#### **Baking Lab/Theory and Merchandising I (25 Hours/Week)**

Students are introduced to the fundamentals of production, processing and mixing of various ingredients used in bread and rolls, sweet yeast dough products and specialties, biscuits and muffins, doughnuts and crullers, pies and pastries, cakes and cake specialties, and cookies. Also included are care and use of equipment, bakery sanitation, proper storage of ingredients, experiments with baking formulas, chemical leavening agents, and baking ingredients and their properties.

Basic storeroom procedures, record keeping and product merchandising are included in the merchandising portion of the class.

#### **Baking Lab/Theory and Merchandising II (25 Hours/Week)**

*(Prerequisite: Baking Lab/Theory and Merchandising I)* This course continues the principles of Baking I with emphasis on baking chemistry and advanced procedures in production of products. More study of international pastries and desserts is provided with management principles incorporated at the supervisory level. Responsibilities of merchandising are delegated with actual shop procedures followed.

#### **Basic Accounting Principles (5 Hours/Week)**

Instruction is provided in accounting fundamentals. Included are the accounting cycle, accounting statements and the principles of journalising and posting.

#### **Cashiering (2 Hours/Week)**

The student learns how to use cash registers, including the ability to solve procedural problems that occur at a register and checkout station.

#### **Industrial Safety (3 Hours/Week)**

This course includes training in the Red Cross Multimedia System and cardiopulmonary resuscitation, for which Red Cross Certification is issued upon successful completion. Occupational safety is stressed.

#### **Salesmanship (3 Hours/Week)**

This course follows the steps of a sale from preparation to completion. Class participation and student demonstration are stressed.

# Quantity Food Preparation

## 2 Trimesters

The Culinary Arts Quantity Food Preparation Program emphasizes nutritional food preparation leading to entry into one of the fastest growing industries as sauté cook after the first trimester or dinner cook upon completion of the full program.

In the first trimester, students learn the fundamentals of food preparation and principles of cookery, use of tools and cleanliness of equipment. During the second trimester, students are given instruction in the cooking, proper care, and refrigeration of foods; fundamentals of baking; background knowledge and basic instruction in cutting of meats; and ordering and purchasing procedures.

The program is housed in two working labs specifically designed for Culinary Arts, with three adjacent supporting facilities for conducting restaurant-like transactions. The well-equipped labs introduce the student to fryers, grills, broilers, ovens, steam cookers and many other equipment items used in the local restaurant industry.

The eight-month program provides up to 900 hours of instruction, of which 600 are laboratory and 300 hours are supporting courses.

A student may leave the program when a training objective has been reached and receive a rating sheet detailing the skills mastered. To earn a diploma, a student must successfully complete a total of 825 hours of which 600 are laboratory work and 225 are related theory.

Graduates of this program are encouraged to enroll in the Baking Program, as space permits, to enhance their employability.

Quantity Food Preparation students must pay an equipment fee of \$80 before entering the first trimester, and an additional \$50 before the second trimester, totaling \$130.

## ENTRANCE REQUIREMENTS

1. Must make an acceptable score on a mathematics test.
2. Must be free of chronic allergies to detergents and soap.
3. Health Requirement: To enroll in this program, it is necessary to present a certificate to T-VI stating that the student is free from tuberculosis in a transmissible form. The certificate must be obtained and signed by a licensed physician no more than 90 calendar days prior to the beginning of the program.

## CULINARY ARTS QUANTITY FOOD PREPARATION PROGRAM

<i>Trimester I</i>	<i>Hours/Week</i>
Sauté Cook Lab I .....	20
Sauté Cook Theory I .....	5
Food Service Math .....	3
Cashiering .....	2
 <i>Trimester II</i>	
Dinner Cook Lab II .....	20
Dinner Cook Theory II .....	5
Supporting Courses .....	0-5
 <i>Supporting Courses</i>	
Basic Accounting Principles .....	5
Food Garnishment .....	3
Industrial Safety .....	3
Stewardship .....	3

## COURSE DESCRIPTIONS

### Sauté Cook Lab I (20 Hours/Week)

This laboratory class teaches the different methods of preparing meats, vegetables, soups, sauces and thickening agents, sandwiches and salads, breakfast food and basic baking. Emphasis is placed on food costs, nutrition, personal hygiene and sanitation, safety, tools and stationary equipment, and basic cashiering as applied to Culinary Arts.

### Sauté Cook Theory I (5 Hours/Week)

Instruction is provided in sautéed dishes, cuts of meat, mixing, breading, color and appearance of food, neatness of serving, cooking methods and techniques, speed and efficiency, and cleanliness. Basic instruction is given in sauté frying, broiling of sea foods and methods of serving.

### Food Service Math (3 Hours/Week)

Basic arithmetic is studied in this course. Industrial applications are thoroughly covered and applied to the Culinary Arts major.

### Cashiering (2 Hours/Week)

In this class, students learn to use cash registers, including the ability to solve procedural problems that occur at a register and checkout station.

### Dinner Cook Lab II (20 Hours/Week)

(Prerequisites: Sauté Cook Lab and Theory I or equivalent) This laboratory class gives instruction in cooking methods and techniques, herbs and spices, cutting meats, salads and salad dressings, baking, following instructions in recipes, calculation of cost and pantry work.

### Dinner Cook Theory II (5 Hours/Week)

(Prerequisites: Sauté Cook Lab and Theory I or equivalent) Instruction supports the work accomplished in the dinner cook lab. Emphasis is on various types of stews, fricassees, garnishes, sauces, gravies and stocks. This course also covers roasting meats, use of leftover meats and meat trimmings, fundamentals of baking and storage of foods.

### Basic Accounting Principles (5 Hours/Week)

Instruction is provided in accounting fundamentals, including the accounting cycles, accounting statements and the principles of journalizing and posting.

### Food Garnishment (3 Hours/Week)

This course covers fundamental decorating techniques, icing the cake, decorative icings, ornamenting tubes and their use, pressure control exercises and color techniques. An introduction to hors d'oeuvres, sandwiches, salads and desserts for parties is included.

### Industrial Safety (3 Hours/Week)

This course includes training in the Red Cross Multimedia System and cardiopulmonary resuscitation, for which Red Cross Certification is issued upon successful completion. Occupational safety is stressed.

### Stewardship (3 Hours/Week)

Instruction is provided regarding the identification, solution and prevention of problems in areas ranging from purchasing to sanitation. Topics to be covered will include receiving and storage, menus, frozen foods, kitchen layout, controls and employee training. Emphasis will also be placed on salesmanship, basic bookkeeping, storeroom procedures, back-of-the-house activities, requisitions and dealing with the public.



# HEALTH OCCUPATIONS

T-VI's Health Occupations Department is on the first two floors of the Presbyterian Professional Building, 201 Cedar SE. It includes four programs: Nursing Assistant, Practical Nursing, Respiratory Therapy Technician and Patient Service Clerk. The department is scheduled to be moved to 1215 Hazeldine SE in late 1979 or early 1980.

Persons may inquire about the programs and apply for admission at the T-VI Admissions office on the main campus, 525 Buena Vista SE.

Applicants for the Nursing Assistant and the Patient Service Clerk programs follow the regular T-VI admission procedures explained at the beginning of this catalog. The Nursing Assistant Program is offered each trimester while the Patient Service Clerk Program is offered during the winter and summer trimesters only.

The other two programs, Practical Nursing and Respiratory Therapy Technician, have beginning groups only once a year in the fall. Special application forms are used for both programs.

Applications for the Practical Nursing Program will be taken only between 8 a.m. and noon on March 3, 4 and 5, 1980. Application must be made at the T-VI campus in person; either by the applicant or a representative. Challenge applications will be taken from September 17, 1979, to October 31, 1979, at the Health Occupations office. The challenge examinations will be given November 5, 1979. Additional information about the challenge exam follows the description of the Practical Nursing Program in this catalog.

Respiratory Therapy Technician applications will be accepted beginning May 5, 1980, and must be made in person by the applicant or a representative.

Classes in both programs will begin in September, 1980.

Because these two programs are very demanding, and because the number of applicants far exceeds the number of student training positions

available, an admissions process is used to establish a Practical Nursing Class of 90 students and a class of 22 Respiratory Therapy Technician students.

One-third of the students selected for the Practical Nursing class will be those scoring highest on the admissions test and having a health occupations background. A second portion of the class will be made up of alternates selected but not called for the previous year's class. The last portion of the class will be made up of persons randomly selected by computer from the remaining applicants who meet the requirements of qualifying test scores, having an interview and submitting letters of recommendation.

For the Respiratory Therapy Technician class, the admissions process begins with testing. Those who meet minimum requirements on the test are considered on the basis of past academic records, work experiences, letters of recommendation and interviews.

Applicants for the Practical Nursing, Respiratory Therapy Technician and Patient Service Clerk must have a high school diploma to meet requirements of licensing agencies and the health care employers.

All of the health occupations students attend classes in one of the modern classrooms in the Health Occupations Department. The Helene Fuld Library and Media Center is one of the best health occupations libraries in the area with a large collection of books and films. Learning laboratories are equipped with hospital furnishings and supplies, respiratory therapy machines, and life-like models which provide students the opportunity to practice basic skills needed for their clinical experiences.

Students have supervised patient care and observational experiences at different local health agencies. Some of the agencies used are Anna Kaseman Hospital, Bernalillo County Medical Center and Mental Health Center, Presbyterian Hospital, St. Joseph Hospital, Veterans Administration Hospital, Hospital-Home Health Care Agency and the Visiting Nurse Service.

# Nursing Assistant

## 1 Trimester

This program trains students to do nursing skills required for the care and comfort of the sick in hospitals, nursing homes, public health agencies, private medical and dental offices, and in the home setting.

Persons completing the program successfully will receive certification as Nursing Assistants and as Home Health Assistants.

Good communication skills are necessary in the program as well as being able to clean and cook. Applicants are encouraged to have a valid New Mexico driver's license because students must provide their own transportation to the various health care agencies and patient's homes. Since city buses often do not go to all the places students are assigned, students should have access to other transportation.

A \$25 fee covers the cost of the required uniform top and laboratory tests. A watch with a second hand and uniform slacks and shoes are required but not provided.

The 15-week program totals 328 hours of instruction of which 197 are laboratory work and 131 are theory. Nine weeks are classroom and laboratory work followed by six weeks of extensive supervised clinical training in local hospitals

and home health agencies. A student attends an average of 22 hours per week throughout the program.

## NURSING ASSISTANT PROGRAM

<i>Course Requirements</i>	<i>Total Hours</i>
Nursing Assistant—Home Health Assistant	
Lab and Theory . . . . .	90
Nutrition Lab and Theory . . . . .	21
Health Communications . . . . .	12
Anatomy and Physiology . . . . .	18
Math . . . . .	45
Hospital Clinical Experiences . . . . .	88
Home Health Clinical Experiences . . . . .	54
Total	328

## COURSE DESCRIPTIONS

### Nursing Assistant—Home Health Theory and Lab

During the first nine weeks, students attend classes in basic nursing skills they will use in health care agencies and in homes. Practice of these skills is provided in the laboratory.

### Nutrition Theory and Lab

Basic nutrition, regular and special diets used in the hospital and home settings are discussed. Home management, community resources, purchasing food and preparing foods are also included. Lab experiences are directly related to the theory.

### Health Communications

Medical terms, abbreviations, communication skills, selected readings and special assignments are combined in this course.

### Anatomy and Physiology

This course provides a basic understanding of the structure and normal function of the body systems. It also covers some of the problems which affect these systems.

### Math

Basic math is reviewed in this course with practice working selected problems.

### Hospital Clinical Experiences

Hospital experiences are a four week portion of the last six weeks of the program and include supervised practice of nursing skills in hospitals throughout the city.

### Home Health Clinical Experiences

Home Health experiences are a two-week portion of the last six weeks and include nursing care of patients in selected home settings.



# Patient Service Clerk

## 10 Weeks

The program for Patient Service Clerk, sometimes called ward clerk or service secretary, trains persons to work in a hospital unit. Transcribing physicians' written and verbal orders, answering the telephone and giving information to patients, visitors and staff are typical activities.

Applicants must have a high school diploma or equivalency. They must be able to write clearly and accurately as well as have an ability to speak distinctly to others. Being able to speak Spanish as well as English is helpful. Physical stamina is essential because the job requires moving about quickly and easily in an area of intense activity.

There is a \$25 fee which covers the required uniform top and laboratory tests. Uniform slacks are required but not provided.

The 300-hour program is ten weeks long with six weeks of classroom theory and four weeks of clinical practice in local hospitals. A certificate is awarded upon completion.

The Patient Service Clerk Program will be offered only in the winter and summer trimesters.

This program is not eligible for Veterans Administration training benefits.

## PATIENT SERVICE CLERK PROGRAM

<i>Course Requirements</i>	<i>Total Hours</i>
Patient Service Clerk Theory and Lab .....	204
Patient Service Clerk Clinical Practice .....	96
Total	300

## COURSE DESCRIPTIONS

### Patient Service Clerk Theory and Lab

This course combines a number of topics, including orientation to the hospital, the patient, and the role of the patient service clerk. Presentations and practice of medical terms, abbreviations, communications, pharmacology terms, forms and transcription of orders are included.

### Clinical Practice

Supervised clinical experience takes place in local hospitals during the last four weeks of the program.



# Practical Nursing

## 3 Trimesters

This program prepares students to care for patients in a variety of health care facilities under the supervision of registered nurses and physicians. Men and women who want to work in a field in which they can provide help to others should find practical nursing a satisfying choice.

The T-VI/Presbyterian Hospital School of Practical Nursing is accredited by the National League for Nursing and approved by the New Mexico State Board of Nursing (NMSBN).

After the completion of the three-trimester program, students are eligible to take the state practical nursing license examination given by the NMSBN.

Practical Nursing applicants must have either a high school diploma or equivalency and score well on achievement tests to be considered for the program. Applications for the September, 1980, class will be accepted between 8 a.m. and noon on March 3, 4 and 5, 1980, and must be made by the applicant personally or a representative at that time.

Required for a diploma are 1,350 hours of instruction of which 785 are laboratory work and 565 are theory. Clinical experiences generally have to be scheduled at different hours so the hours of classes and clinical experiences may vary from day to day, and there may be an occasional Saturday class.

Students must be able to attend classes, observations and clinical experiences as scheduled and plan for their own transportation to the agencies and hospitals. The first trimester, or 15-week block, consists of pre-clinical training in nursing skills with related theory courses. The second and third trimesters are spent in classroom and clinical experiences related to medical-surgical nursing for children and adults and maternal-infant nursing.

Practical Nursing requires a once-only \$70 fee which supplies required uniforms, cap and identification tags. It does not cover the cost of an entrance physical examination, a watch with second hand, uniform shoes, stethoscope, scissors, liability insurance, graduation uniform, graduation pin or state board exam fees. **Liability insurance is required and must be purchased in the first trimester.**

## PRACTICAL NURSING PROGRAM

<i>Trimester I</i>	<i>Total Hours</i>
Anatomy and Physiology I .....	60
Nursing I .....	163
Nursing Skills Lab and Clinical Experience .....	195
Dosages and Solutions .....	32
Total	450

<i>Trimester II</i>	
Nursing II	
Clinical Experience .....	300
Theory .....	150
Total	450

<i>Trimester III</i>	
Nursing III	
Clinical Experience .....	100
Theory .....	50
Nursing IV	
Clinical Experience .....	100
Theory .....	50
Nursing V	
Clinical Experience .....	100
Theory .....	50
Total	450

## COURSE DESCRIPTIONS

### Anatomy and Physiology I

This course gives the student a basic concept of the general plan, structure and the normal function of the body systems and how they work together.

### Nursing I

People's needs in sickness and health are presented. Nursing principles and skills, personal and community health, nutrition, human growth and development, vocational concepts and first aid are included in the course.

### Nursing Skills Lab and Clinical Experience

Practice situations in the laboratory and experiences in hospital clinical units accompany the theory learned in Nursing I.

### Dosages and Solutions

This course is designed to teach the student the mathematics involved in preparing fractional dosages of drugs and in preparing solutions. Methods of converting from one math system to another are included. Safety in calculating and preparing dosages is stressed.

(continued on p. 49 following application)

## PRACTICAL NURSING CHALLENGE

Persons with a background in health occupations and the ability to perform basic nursing skills may apply in the Health Occupations office to challenge portions of the Practical Nursing Program.

Persons must score satisfactorily on the exam and become full-time students for a minimum of 12 weeks.

The challenge examinations are given once a year on the first Monday in November. The next exam is scheduled November 5, 1979. Applications for challenge will be accepted between September 17, 1979, and October 31, 1979, in the Health Occupations office. If an applicant does not score satisfactorily on the challenge exams, the applicant must take all of the Practical Nursing Program course work to obtain a diploma. Persons may not retake the challenge examinations.

Four tests are given. The first two tests cover primarily first trimester content of the Practical Nursing Program, and applicants must score satisfactorily on the first two tests to take the others. The third and fourth tests cover material taught in the second and third trimesters and are used to determine an applicant's theory and clinical experience needs.

Challenge students are then admitted for residency in the program on the basis of available space in the program, performance on challenge examinations, prior experiences and approval of the faculty.

This residency provides an opportunity for the faculty to evaluate each student's performance. Following this period, the faculty considers a student for graduation, based on how well the student completes the work in the program.

Challenge students accepted into the Practical Nursing Program must submit transcripts of prior education or proof of high school graduation equivalency, pay the required T-VI fees, purchase their own school uniforms and other needed equipment, and have a physical examination prior to admission.

Challenge students who meet the objectives of the program are considered graduates of the program and are recommended for state board examinations.



### Nursing II

People's needs during illness are expanded in the class presentations of the course. Clinical experiences give students the chance to practice what is taught in class. The course is designed to help students learn to care competently for patients, both children and adults, with medical and surgical disorders.

### Nursing III

Normal processes of the reproductive cycle including prenatal, labor, delivery and postpartum care are introduced in this course. Care of the newborn and a study of the more common problems seen in the newborn are covered. Clinical experiences accompany the class.

### Nursing IV

This course focuses on learning the theory and skills of caring for patients experiencing complex medical-surgical problems.

### Nursing V

Students, with the help of instructors, select experiences which will meet their own learning needs in areas such as psychiatric, community or rehabilitative nursing.



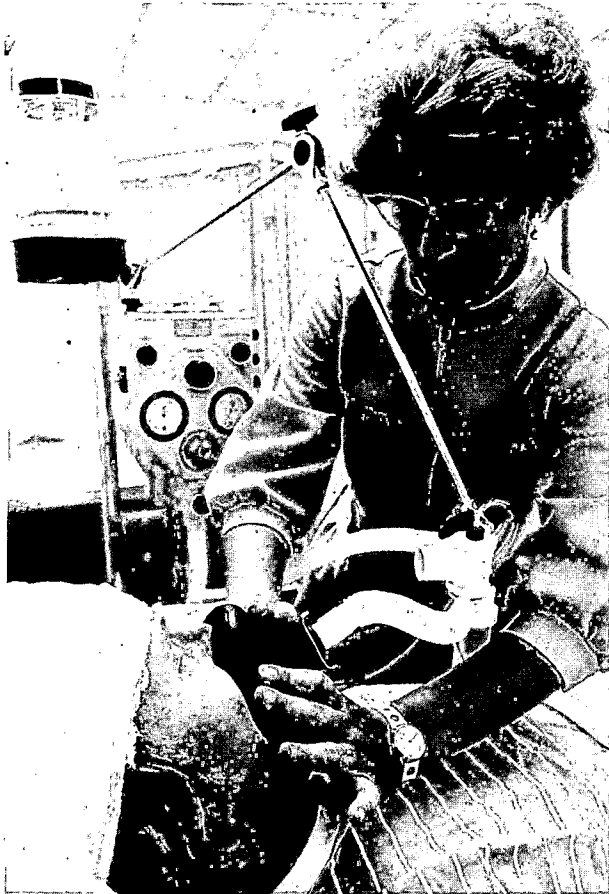
# Practical Nursing Refresher

6 Weeks

This six-week course is designed to renew skills of inactive licensed practical nurses, to introduce new trends and procedures and to provide clinical experiences. It was developed to meet the New Mexico State Board of Nursing requirements of license renewal for licensed practical nurses who have not practiced nursing within the past five years. Theory classes and clinical experiences focus on medical and surgical nursing care including pharmacology.

Refresher courses are offered on the basis of demand and need, availability of clinical experiences and qualified faculty. Ten people are admitted to each course. Participants pay a \$10 registration fee plus the costs of required textbooks. Since no definite dates are established, interested persons should contact the Health Occupations office for more information.

This program is not eligible for Veterans Administration benefits.



## Respiratory Therapy Technician

3 Trimesters

The Respiratory Therapy Technician Program teaches the special skills required for treatment, management, control and care of patients who have problems breathing. The program is one year long and includes classroom instruction and specialized clinical experiences in local hospitals. It is accredited by the American Medical Association Council on Education.

Applicants must have either a high school diploma or equivalency and must make a qualifying score on achievement tests to be considered. Since respiratory therapy involves handling and care of treatment equipment, the applicants must be able to lift materials weighing up to 50 pounds.

The program has a beginning group in the fall trimester only. Applicants for the September, 1980, class will be accepted beginning May 5, 1980.

Respiratory Therapy Technician students pay a \$65 fee when they begin the program. This covers the costs of required uniforms, scissors

and identification tags. It does not cover the cost of the school's graduation pin, stethoscope, pre-entrance physical examination or student liability insurance. **Liability insurance is required and must be purchased in the first trimester.**

The program totals 1,350 hours of instruction of which 885 are laboratory work and 465 are theory. The clinical experience schedule may vary from day to day but attendance averages 30 hours per week in the program.

Students must provide their own transportation to the clinical facilities.

## RESPIRATORY THERAPY PROGRAM

<i>Trimester I</i>	<i>Total Hours</i>
Anatomy and Physiology I .....	60
Chemical and Physical Principles of Respiratory Therapy .....	60
Fundamentals of Respiratory Therapy .....	75
Introduction to Patient Care .....	45
Respiratory Therapy Lab and Clinical Experiences I .....	210
Total	450
<i>Trimester II</i>	
Anatomy and Physiology II .....	45
Clinical Experiences II .....	300
Microbiology and Demonstration Lab .....	60
Psychosocial Aspects of Patient Care .....	45
Total	450
<i>Trimester III</i>	
Cardio-Pulmonary Problems .....	30
Clinical Experiences III .....	360
Pharmacology .....	45
Respiratory Therapy Seminar .....	15
Total	450

## COURSE DESCRIPTIONS

### Anatomy and Physiology I

This course gives the student a basic concept of the general plan, structure and normal function of the body systems and the dependency of one on another.

### Chemical and Physical Principles of Respiratory Therapy

Physics, chemistry and mathematics pertinent to respiratory therapy are included in this general survey course.

### Fundamentals of Respiratory Therapy

This basic course surveys respiratory therapy as a paramedical profession—the personal qualifications, ethics, expectations and opportunities—and also presents basic procedures.

### Introduction to Patient Care

The patient is introduced as an individual and as the central figure in a complex environment. Routine nursing care, isolation, special nursing problems and clinical specialties are discussed with regard to respiratory therapy.

### Respiratory Therapy Lab and Clinical Experiences I

The laboratory experiences stress safe practices in the use and maintenance of regulators and gas supply systems, devices and respiratory therapy machines. Beginning clinical experiences held in city hospitals introduce the student to the clinical setting and the patient, as well as practice in basic skills.

### Anatomy and Physiology II

This course emphasizes more advanced knowledge of the anatomy and physiology of the circulatory, pulmonary, renal and nervous systems and their relationship to each other.

### Clinical Experiences II

Supervised clinical experiences continue with experiences in giving various respiratory treatments and maintenance and care of equipment.

### Microbiology and Demonstration Lab

Study in this course includes some of the microorganisms related to sickness and health, particularly those affecting patients with respiratory problems. The microbes discussed in class are studied during the lab. Cleaning of respiratory therapy equipment is practiced.

### Psychosocial Aspects of Patient Care

The basic psychodynamics of human behavior are presented. Emphasis is placed on human behavior during illness, especially chronic pulmonary disease. Understanding self as well as others is also included.

### Cardio-Pulmonary Problems

General pathological processes are studied as applied to different pathological conditions, both surgical and medical. Each condition will be explained from the standpoint of etiology, symptoms, diagnosis, therapy and prognosis.

### Clinical Experiences III

Experiences in the third trimester will provide practice in giving more complex respiratory therapy treatment to patients and in identifying physical, social and emotional patient needs.

### Pharmacology

The general principles of pharmacology and respiratory therapy pharmacology are given in this course.

### Respiratory Therapy Seminar

Case presentations, ethics, and organizations and administration of respiratory therapy departments are discussed.

# TECHNOLOGIES



## ASSOCIATE IN APPLIED SCIENCE DEGREE

Students who complete the full sequence of courses for a diploma in Data Processing, Drafting Technology or Electronics may transfer their credits at no cost to the University of Albuquerque if they become candidates for the Associate in Applied Science degree. The degree will be awarded upon the completion of approximately 23 semester hours of general education requirements as specified by the University of Albuquerque.

Additional information may be obtained from the admissions offices of the University of Albuquerque or the Albuquerque Technical-Vocational Institute.

## Civil and Map Drafting

### 4 Trimesters

Civil and Map Drafting provides students with job-entry skills in all phases of surveying as entry level cartographers and as design draftsmen. Positions are with surveying, mining, engineering and drafting organizations.

The Civil and Map Drafting Program uses labs that contain modern drafting machines, drafting stations, theodolites, transit levels and electronic distance meters. Also used in the program will be a Wang 2200 minicomputer and a Data General M-600 computer.

Civil and Map Drafting offers up to 1,605 hours of instruction, including 800 hours of laboratory instruction and 805 hours of theory and supporting courses. To earn a diploma, a student must successfully complete a total of 1,605 hours of which 800 are laboratory work and 805 are related theory.

Students must pay a \$35 personal equipment fee before entering the first trimester and an additional \$40 when they enter the second trimester.

### CIVIL AND MAP DRAFTING TECHNOLOGY PROGRAM

<i>Trimester I</i>	<i>Hours/Week</i>
Construction Drafting Lab/Theory I .....	15
Drafting Math I .....	5-10
Building Materials and Methods I .....	5
 <i>Trimester II</i>	
Cartographic Techniques Lab/Theory .....	15
Applied Math II for Civil and Map .....	5
BASIC Computer Programming I .....	5
Plane Surveying I .....	6
 <i>Trimester III</i>	
Photogrammetric Techniques Lab/Theory .....	9
BASIC Computer Programming II .....	5
Surveying and Mapping Techniques .....	5
Plane Surveying II .....	6
 <i>Trimester IV</i>	
Civil Drafting Lab/Theory .....	15
Communications .....	5
Plane Surveying III .....	6
 <i>Supporting Course</i>	
Reading Improvement .....	5

## COURSE DESCRIPTIONS

### Construction Drafting Lab/Theory I (15 Hours/Week)

This course introduces general drafting theory and techniques needed to produce construction drawings for residential and light commercial structures. The student also learns to use manufacturers' materials and standard references in developing drawings.

### Drafting Math I (5-10 Hours/Week)

This course applies algebra and geometry concepts to the drafting field.

### Building Materials and Methods I (5 Hours/Week)

Properties of building materials are related to actual methods of light construction and building design. Blueprint reading, zoning, building codes, material estimates, aspects of solar energy and financing are included in this course.

### Cartographic Techniques Lab/Theory (15 Hours/Week)

*(Prerequisite: Construction Drafting Lab/Theory I)* This mapping course includes an introduction to mapping followed by practice in inking lines and Leroy lettering on vellum and drafting film. Tracings are made of topographic, geological and plan and profile maps. Format development precedes techniques and practice in negative scribing, preparation and reproduction of mechanical separations.

### Applied Math II for Civil and Map (5 Hours/Week)

*(Prerequisite: Drafting Math I)* This applied approach to trigonometry is related to surveying and mechanical problems and supports the applications programmed in the BASIC Language Programming I course.

### BASIC Computer Programming I (5 Hours/Week)

*(Prerequisite: Drafting Math I)* This introduction to BASIC, a beginning computer programming course, includes use of input and output statements, arithmetic operations, comparison and branching commands, use of subroutines and the library functions. Algorithms are developed associated with surveying and engineering computations.

### Beginning Plane Surveying (6 Hours/Week)

*(Corequisite: Applied Math II for Civil and Map)* The student is introduced to the basic techniques and equipment used in surveying including tape, level, theodolite and the engineering transit. Field work and related computations are done in leveling, distance and angle measurement related to mapping.

### Photogrammetric Techniques Lab/Theory (9 Hours/Week)

*(Prerequisite: Cartographic Techniques Lab/Theory)* This course includes theory and practice in aerial photography, geometry of single vertical photographs and overlapping aerial photos, flight planning, ground control and photographic rectification. Students have introductory experience in the use of modern stereoscopic plotting instruments and map compilation leading to the preparation of maps from aerial photos.

### BASIC Computer Programming II (5 Hours/Week)

*(Prerequisite: BASIC Language Programming I)* This extension of BASIC I includes units on magnetic tape and disk files, formatted output, character string manipulation and plotting routines. The development of interactive programs emphasizing data editing and error detection routines. Programs are related to surveying problems.

### Surveying and Mapping Techniques (5 Hours/Week)

An overview of modern surveying methods is presented relating surveys of the U.S. Public Lands, land grants, small holding and mining claims to contemporary surveys. Extensive practice in the use of the National Geodetic Survey (NGS) Horizontal and Vertical Networks and the New Mexico State Plane Coordinate System is provided.

### Intermediate Plane Surveying (6 Hours/Week)

*(Prerequisite: Beginning Plane Surveying)* Instruction includes practice in the use of one-second theodolites, EDM equipment and data reduction by computer preceding topographic, stadia and control surveys and the field checking of a topographic map. A concentrated unit on mine surveying and measurement methods is included and a retracement survey is conducted.

### Civil Drafting Lab/Theory (15 Hours/Week)

*(Prerequisite: Photogrammetric Techniques Lab/Theory)* Students practice up-to-date development and calculation techniques to analyze route surveys and produce highway, utility plan and profile drawings. A unit on subdivision design including drainage plans and sanitary sewers is included. This course is offered in conjunction with Advanced Surveying.

### Communications (5 Hours/Week)

Speaking, writing, listening and editing skills are reviewed through simulated industrial situations.

### Advanced Plane Surveying (6 Hours/Week)

*(Prerequisite: Intermediate Plane Surveying)* Included are horizontal and vertical curve calculations and design, earthwork measurements, subdivision staking, offset staking, slope staking, and construction surveys and inspection.

### Reading Improvement (5 Hours/Week)

This course helps students understand what they read. Students with special reading problems are counseled to take this course.

# Construction Drafting

## 4 Trimesters

Construction Drafting provides students with job-entry skills as architectural, structural, mechanical and mechanical equipment drafters; estimators and schedulers. Supporting technical courses are included.

The drafting lab contains modern drafting machines, drafting stations and related equipment.

Construction Drafting offers up to 1,575 hours of instruction, including 900 hours of laboratory instruction and 675 hours of theory and supporting courses. Additional supporting courses may be taken by the student in the second, third and fourth trimesters. To earn a diploma, a student must successfully complete a total of 1,500 hours of which 675 are laboratory work and 825 are related theory.

A student who completes the Construction Drafting program may transfer to the University of New Mexico School of Architecture and Planning and receive at least 12 semester hours of credit. Other University of New Mexico courses may be challenged by the student for credit.

Students pay a personal equipment fee of \$35 at the beginning of the program.



## CONSTRUCTION DRAFTING TECHNOLOGY PROGRAM

<i>Trimester I</i>	<i>Hours/Week</i>
Construction Drafting Lab/Theory I .....	15
Drafting Math I .....	5-10
Building Materials and Methods I .....	5
<i>Trimester II</i>	
Construction Drafting Lab/Theory II .....	15
Building Materials and Methods II .....	5
Applied Construction Math II .....	5
<i>Trimester III</i>	
Construction Drafting Lab/Theory III .....	15
Structural Detailing .....	5
Applied Physics I .....	5
<i>Trimester IV</i>	
Mechanical Systems Lab/Theory .....	15
Construction Analysis .....	10
<i>Supporting Courses</i>	
Applied Computer Technology .....	5
Applied Physics II .....	5
BASIC Computer Programming .....	5
Basic Surveying .....	5
Employment Dynamics .....	5
Pipe Drafting .....	5
Precast Concrete Detailing .....	5
Reading Improvement .....	5
Any Approved Trades Course .....	5

## COURSE DESCRIPTIONS

### Construction Drafting Lab/Theory I (15 Hours/Week)

This course introduces general drafting theory and techniques needed to produce construction drawings for residential and light commercial structures. The student also learns to use manufacturers' materials and standard references in developing drawings.

### Drafting Math I (5-10 Hours/Week)

This course applies algebra and geometry concepts to the drafting field. All or part of this math course may be waived depending on the student's performance on a math test. A computer related course could be substituted for part of the math course with permission of the program coordinator.

### Building Materials and Methods I (5 Hours/Week)

Properties of building materials are related to actual methods of light construction and building design. Blueprint reading, zoning, building codes, material estimates, aspects of solar energy, and financing are included in this course.

**Construction Drafting Lab/Theory II (15 Hours/Week)**

*(Prerequisite: Construction Drafting Lab/Theory I)*  
This course is a continuation of Basic Construction Drafting with emphasis on commercial construction. Students in this course spend time developing light commercial projects from layout through construction document production.

**Building Materials and Methods II (5 Hours/Week)**

*(Prerequisite: Building Materials and Methods I)* With major emphasis on heavy construction, students study various aspects of building applications including zoning, building codes and specifications. Mechanical and electrical systems for residential and commercial buildings will also be covered.

**Applied Construction Math II (5 Hours/Week)**

*(Prerequisite: Drafting Math I)* This applied approach to trigonometry is related to surveying and mechanical problems and includes basic surveying techniques. Construction estimating is also introduced.

**Construction Drafting Lab/Theory III (15 Hours/Week)**

*(Prerequisite: Construction Drafting Lab/Theory II)*  
This course offers drafting applications and theory for heavy construction projects. Working drawings are prepared for a multi-level office building. Drawings will be developed for this project in three major modes of construction: structural steel, precast concrete and cast-in-place concrete. The drawings will include a site plan, floor plan, roof plan, a building cross section and details.

**Structural Detailing (5 Hours/Week)**

*(Corequisite: Construction Drafting Lab/Theory III)*  
An introduction to the typical steel fabricating shop practices in the preparation of structural steel shop drawings. The techniques and standards of developing these shop drawings are presented. Steel beam, steel column detailing and some general information regarding steel reinforcing detailing will also be given.

**Applied Physics I (5 Hours/Week)**

This course covers the basic principles of heat, light, sound, electricity, strength of materials and common testing procedures. Beam theory, which introduces the student to structural design in wood, steel and concrete, is a major part of this course. Students learn to set up and solve elementary beam design problems.

**Mechanical Systems Lab/Theory (15 Hours/Week)**

Calculations and design of mechanical and electrical systems and the materials and equipment used in those systems are covered. The lab section provides practice in graphically defining common heating, air-conditioning, plumbing, waste disposal and electrical systems. Energy conservation code calculations and requirements and solar energy fundamentals are covered.

**Construction Analysis (10 Hours/Week)**

*(Prerequisite: Construction Drafting Lab/Theory III)*  
Construction project analysis and planning are presented in this course. Heavy construction estimating, blueprint reading and the application of the computer in the construction field are covered.

**Applied Computer Technology (5 Hours/Week)**

*(Prerequisite: Drafting Math I)* This course offers an introduction to computers and computer systems as they relate to the construction field. The student will have an opportunity to use prepared software to solve construction problems. Also included will be an introduction to the computer language called BASIC.

**Applied Physics II (5 Hours/Week)**

*(Prerequisite: Applied Physics I)* Students practice and perfect concepts from Applied Physics I and apply these problem solving techniques to practical construction design problems.

**BASIC Computer Programming (5 Hours/Week)**

This introduction to BASIC, a beginning computer programming course, includes use of input and output statements, arithmetic operations, comparison and branching commands, use of subroutines and the library functions. Algorithms associated with surveying and engineering computations are developed.

**Basic Surveying (5 Hours/Week)**

*(Prerequisite: Drafting Math I)* The basic techniques and equipment used in surveying are introduced. The student will use the transit and level. Field work with the necessary calculations to lay a building out on a prescribed site along with other simulated jobs will be covered.

**Employment Dynamics (5 Hours/Week)**

The student is given practice in skills that, in addition to occupational skills, will enhance his employability and success in the labor market. Information in this course includes how and where to look for a job, presenting abilities in an interview, employers' expectations concerning new and veteran employees, motivating and supervising techniques. Also covered will be management considerations such as time and motion studies, organizational charts, proposals and bidding, budgeting time and money, purchasing, licensing, regulations and maximizing profits. The student learns the importance of effective communication and receives training in listening, speaking, reading and writing.

**Pipe Drafting (5 Hours/Week)**

A basic introduction to process piping with emphasis on equipment, terms, data, nomenclature and flow diagrams. Inking and Leroy lettering are also covered.

**Precast Concrete Detailing (5 Hours/Week)**

*(Prerequisite: Construction Drafting Lab/Theory III)*  
An introduction to the standards for preparation of shop drawings for precast, prestressed concrete products will be covered. Detailing practices included are double tees, single tees, inverted tee beams, bridge girders, precast slabs and wall units. Terms, symbols and dimensioning standards are also covered.

**Reading Improvement (5 Hours/Week)**

This course helps students understand what they read, and students with special reading problems are counseled to enroll.

# Data Processing

## 4 Trimesters

Persons who would enjoy the challenging and interesting activity of solving information and management problems using computer hardware and techniques should consider a career in the field of automated data processing. This program serves as a springboard to enter and succeed in such a career. Graduates are qualified for jobs as business application programmers.

The computer currently being used at T-VI is the Data General M-600, with 512K Memory, two 96MB disk drives, 16 CRT terminals, magnetic tape, line printer and card reader. Also in use is an IBM-M-30, 96K Memory, eight 2311 disk drives, two 2401 tape drives, printer, reader, IBM-29 punch and Univac 1710 key-punches.

The first and second trimesters give the student a sound background in fundamental computer skills used on a wide variety of computer and computer-related equipment. The third and fourth trimesters continue to build computer application skills with a great deal of emphasis upon problem solving techniques and the man-machine interface. Minicomputer and mainframe environments are used in teaching five widely-used programming languages.

A Data Processing Trainee Certificate is awarded after completing the first and second trimesters. To earn a diploma, a student must successfully complete a total of 1,650 hours of which 960 are laboratory work and 690 are related theory.

## DATA PROCESSING PROGRAM

<i>Trimester I</i>	<i>Hours/Week</i>
ANSI COBOL .....	10
Introduction to Computers .....	5
Algebra/Management Math .....	10
<i>Trimester II</i>	
Advanced ANSI COBOL .....	10
RPG II .....	5
JCL, Files, Utilities and Sorts .....	10
Accounting I .....	5
<i>Trimester III</i>	
Assembler .....	10
Advanced RPG II .....	5
Systems Analysis I .....	5
Management Methods I .....	5
Accounting II .....	5
<i>Trimester IV</i>	
Computer System Software .....	10
Advanced Programming Techniques .....	5
Systems Analysis II .....	5
Supporting Courses .....	3-10
<i>Supporting Courses</i>	
Computer Communications and Data Base Theory .....	5
Conversational Computers .....	5
EDP Business Applications .....	10
FORTRAN IV Programming .....	5
Management Methods II .....	5
Reading Improvement .....	5

## COURSE DESCRIPTIONS

### ANSI COBOL (10 Hours/Week)

Projects directly related to programming business and accounting applications are coded, debugged and executed in structured ANSI COBOL programming.

### Introduction to Computers (5 Hours/Week)

Instruction is provided in computer arithmetic, memory coding schemes, memory dumps, computer logic and control, flow charting of computer problems and some system flowcharting. An introduction to the BASIC Computer Programming Language is also given.

### Algebra/Management Math (10 Hours/Week)

Algebra fundamentals are covered in this course along with selected business and management mathematical applications.

### Advanced ANSI COBOL (10 Hours/Week)

*(Prerequisite: ANSI COBOL or equivalent)* This course continues development of programming skills in the ANSI COBOL language with emphasis on more complicated statements, clauses and concepts.

### RPG II (5 Hours/Week)

This course introduces the student to the RPG II programming language used in a business organization.

### JCL, Files, Utilities and Sorts (10 Hours/Week)

*(Corequisite: Advanced ANSI COBOL)* The various operating systems, utilities, control languages, as well as standard mass storage devices and data file organization are studied in this course.

**Accounting I (5 Hours/Week)**

This introductory course is designed to familiarize data processing students with accounting theory, practice and terms and their relation to computer data processing. Activities and projects are coordinated with ANSI COBOL.

**Assembler (10 Hours/Week)**

*(Prerequisite: Introduction to Computers)* This machine oriented language is essential to the professional programmer. The student acquires an understanding of programming techniques necessary to write and refine efficient programs.

**Advanced RPG II (5 Hours/Week)**

*(Prerequisite: RPG II)* The remaining features of the RPG II language are included with emphasis on more sophisticated business applications.

**Systems Analysis I (5 Hours/Week)**

*(Prerequisite: Advanced ANSI COBOL)* This is a study of business organizations, staff and line responsibilities. EDP (Electronic Data Processing) group organization, data security, source data controls, processing controls, editing, auditing the system and output review are included. Design, data collection coding and implementation of an actual system provide laboratory experience.

**Management Methods I (5 Hours/Week)**

*(Prerequisite: Algebra/Management Math, Advanced ANSI COBOL)* The application of graphic techniques and descriptive statistics to a variety of computerized, business and management applications are included in this course.

**Accounting II (5 Hours/Week)**

*(Prerequisite: Accounting I)* This continuation course develops the vocabulary and concepts used in the accounting field. Emphasis is placed on the more common applications in which computers are being used.

**Computer System Software (10 Hours/Week)**

*(Prerequisite: Assembler)* The techniques and uses of systems and service programs are studied. Procedures for implementing and effectively using the computer libraries are emphasized.

**Advanced Programming Techniques (5 Hours/Week)**

*(Prerequisite: Advanced ANSI COBOL and JCL, Files, Utilities, and Sorts)* This course prepares the student to use the more sophisticated aspects of the various programming languages and systems.

**Systems Analysis II (5 Hours/Week)**

*(Prerequisite: Systems Analysis I)* All necessary data collection, refinement and editing procedures for selected projects are designed and implemented. Procedure manuals and run books are prepared to document all input, output forms, programs and procedures.

**Computer Communications and Data Base Theory (5 Hours/Week)**

*(Prerequisite: Introduction to Computers; JCL, Files, Utilities, and Sorts)* The major data base packages, their general use and organization plus computer communications concepts are included in this course.

**Conversational Computers (5 Hours/Week)**

*(Prerequisite: Introduction to Computers or equivalent)* This course includes the philosophy and techniques of time shared systems, the BASIC language, man-machine interactive systems, help routines, search and retrieval techniques.

**EDP Business Applications (10 Hours/Week)**

*(Prerequisite: DP Accounting II)* In this course, standard business reports, forms, and procedures are designed, programmed and implemented.

**FORTRAN IV Programming (5 Hours/Week)**

This is an introductory course in FORTRAN IV programming.

**Management Methods II (5 Hours/Week)**

*(Prerequisite: Management Methods I)* This is a continuation of the application of statistics and mathematical techniques in a business environment.

**Reading Improvement (5 Hours/Week)**

The primary objective of this course is to help students understand what they read. Students with special reading problems are counseled to take this course.



# Electromechanical Drafting

## 3 Trimesters

Electromechanical Drafting is a complex field of drafting for persons with a strong interest in electronics and mechanical design. Graduates are prepared for jobs as electromechanical drafters with a background in conceptual and applied experiences which will allow growth and development in typical industrial situations.

This program is unique in that it presents drafting fundamentals in electrical and electronics applications and also includes specialized mechanical drafting and design concepts.

The program lab contains modern drafting stations, drafting machines, process camera and other typical drafting equipment.

The year-long program includes 825 hours of laboratory instruction and up to 450 hours of drafting theory and supporting courses. A new class will be accepted at the beginning of summer trimester only.

To earn a diploma, a student must successfully complete a total of 1,200 hours of which 885 are laboratory work and 315 are theory.

A personal equipment fee of \$35 is required when entering the program.



## ELECTROMECHANICAL DRAFTING PROGRAM

<i>Trimester I</i>	<i>Hours/Week</i>
Electromechanical Assemblies Lab/Theory	15
Algebra	10

<i>Trimester II</i>	<i>Hours/Week</i>
Electronics Drafting Lab	15
Trigonometry	5
Logic Circuit Fundamentals	5
Basic Electricity and Electronics	5

<i>Trimester III</i>	<i>Hours/Week</i>
Electromechanical Systems Lab/Theory	10
Introduction to Mechanical and Tool Design	15
Supporting Course	5

<i>Supporting Courses</i>	<i>Hours/Week</i>
Applied Physics I	5
BASIC Computer Programming	5
Calculus for Electronics	3
Digital I	5
Digital II	5

## COURSE DESCRIPTIONS

### Electromechanical Assemblies/Lab/Theory (15 Hours/Week)

This is a beginning course in orthographic projection, isometric projection and mechanical assemblies related to the electromechanical industry.

### Algebra (10 Hours/Week)

This course applies algebra and geometry concepts to the drafting field.

### Electronics Drafting Lab (15 Hours/Week)

*(Prerequisite: Electromechanical Assemblies Lab/Theory)* This lab incorporates the fundamental concepts of the electrical/electronics field. Students learn to use correct symbology, designations and layout techniques in accordance with military and ASA standards to describe formal schematics, logic diagrams, wiring layouts, cabling diagrams, single-sided and double-sided printed circuit boards.

### Trigonometry (5 Hours/Week)

*(Prerequisite: Algebra)* An applied approach to trigonometry is presented based on mechanical computational needs.

### Logic Circuit Fundamentals (5 Hours/Week)

Basic principles of symbolic logic, design function and design of elementary logic circuitry, primarily of a switching function, are taught. This course is closely linked to the Basic Electricity and Electronics course.

**Basic Electricity and Electronics (5 Hours/Week)**

This course supplements the Electronics Drafting Lab by providing basic concepts of electricity and electronics relevant to electromechanical drafting. Circuitry characteristics, functions of components, typical circuitry applications, and the composition of discrete and integrated circuitry are studied.

**Electromechanical Systems Lab/Theory (10 Hours/Week)**

*(Prerequisite: Electronics Drafting Lab)* Concepts and functional applications of definition techniques in accordance with electrical and mechanical drafting standards are presented. The student learns to prepare drawings requiring standard systems of views and dimensionally define them with respect to design and production capabilities. Students practice incorporating technical data relative to manufacturing processes, materials or hardware definition.

**Introduction to Mechanical and Tool Design (15 Hours/Week)**

The student designs tools based on material considerations and will provide specifications to support the design. Instruction is included in the design of the various parts of tools, including inspection, for different job functions.

**Applied Physics I (5 Hours/Week)**

This course covers the basic principles of heat, light, sound, electricity, strength of materials and common testing procedures. Beam theory, which introduces the student to structural design in wood, steel and concrete, is a major part of this course. Students learn to set up and solve elementary beam design problems.

**BASIC Computer Programming (5 Hours/Week)**

*(Prerequisite: Algebra)* This introduction to BASIC, a beginning computer programming course, includes use of input and output statements, arithmetic operations, comparison and branching commands, use of sub-routines and the library functions. Algorithms are developed associated with engineering computations.

**Calculus for Electronics (3 Hours/Week)**

*(Prerequisite: Trigonometry)* Topics covered are the basic concepts of limits, derivatives, integrals, areas, volumes and controls. These concepts will be applied to electronics problems and computer programs will be used where relevant.

**Digital I (5 Hours/Week)**

This course provides a basic introduction to some of the logic circuit devices and concepts which are applicable to many areas of the electronics industry. The course covers such topics as logic gates, truth tables and logic simplification. Sufficient laboratory time is provided to allow the student to wire circuits on breadboards using TTL integrated circuits. Analysis and development of larger digital systems are covered in both theory and lab.

**Digital II (5 Hours/Week)**

*(Prerequisite: Logic Circuit Fundamentals)* Skills and knowledge of clocked logic, flip-flops, counters, shift-registers and digital displays are demonstrated through both theoretical and experimental analysis. The topics covered in this course are essential building blocks of many digital controlled systems as found in computers, digital instrumentation and clocks.

# Electromechanical Technology

**4 Trimesters**

The Electromechanical Technology Program provides the student with job-entry skills to troubleshoot and repair industrial equipment. Upon completion of the program, the student will understand the theory and operation of electrical, electronic, mechanical, pneumatic and hydraulic equipment. Applications covered involve electronic and mechanical, digital computer and solar control circuitry.

The course accepts new students in the Fall Trimester only.

The program provides students with job-entry skills as an electronic, electromechanical, digital,

energy, control circuitry or microprocessor technician.

To qualify for a Diploma in Electromechanical Technology the student must successfully complete 1,575 hours of which 1,020 are laboratory work and 555 are theory. A Certificate of Electromechanical Testing may be awarded after completion of all courses required in the first three trimesters. A detailed proficiency certificate will be given at the completion of the third and fourth trimester.

All Electromechanical Technology students must pay a personal equipment fee of \$20 at the beginning of the program.



## ELECTROMECHANICAL TECHNOLOGY

<i>Trimester I</i>	<i>Hours/Week</i>
Electronics I .....	15
Electronics Math I .....	5-10
Digital Circuits I .....	5
<i>Trimester II</i>	
Electronics II .....	15
Electronics Math II .....	5
Control Circuitry II .....	10
<i>Trimester III</i>	
Industrial Electronics III .....	10
Control Circuitry III .....	10
Hydraulic, Pneumatic, Mechanical Systems I .....	5
Supporting Courses .....	0-5
<i>Trimester IV</i>	
Industrial Electronics IV .....	10
Electromechanical-Energy Projects Lab .....	5
Hydraulic, Pneumatic, Mechanical Systems II .....	5
Supporting Courses .....	5-10
<i>Supporting Courses</i>	
BASIC Language Programming .....	5
Digital Circuits II .....	10
Electronics Communication I .....	10
Electronics Communications II (7½ Weeks) .....	10
Electronics Instruments .....	10
FCC License Preparation (7½ Weeks) .....	10
Introduction to Instrumentation .....	5
Semiconductor Principles and Applications .....	5
Shop Practices .....	5

## COURSE DESCRIPTIONS

### Electronics I (15 Hours/Week)

This course covers the basic concepts of direct current electricity, Ohm's Law, Kirchoff's Law, network theorems, meter circuits, magnetism, and capacitance and inductance. A student also obtains a good working skill in the use of certain multimeters and handtools.

### Electronics Math I (5-10 Hours/Week)

Emphasis is given to algebra in this course. Concepts of number systems are covered including bases 10, 8 and 2, and also the hexadecimal system. One or two hours of this math course may be waived depending on a student's performance on a math waiver test. Shop Practices, Reading Improvement or BASIC Programming could be substituted for at least one hour of the math course with permission of the program coordinator.

### Digital Circuits I (5 Hours/Week)

This course provides a basic introduction to some of the logic circuit devices and concepts which are applicable to many areas of the electronics industry. This course covers such topics as logic gates, truth tables and logic simplification. Sufficient laboratory time is provided to allow the student to wire circuits on breadboards using actual digital integrated circuits. Analysis and development of larger digital systems are covered in both theory and lab.

### Electronics II (15 Hours/Week)

*(Prerequisites: Electronics I and Electronics Math I)*  
The study of basic circuit laws is extended to alternating current so that students understand the effects of various circuit elements. Inductance, capacitance, transformers, vacuum tubes and semiconductors are introduced. Test equipment such as the oscilloscope, the function generator and frequency counter are used in analyzing resonant circuits, filters and amplifiers.

**Electronics Math II (5 Hours/Week)**

(*Prerequisite: Electronics Math I*) This course includes the study of basic trigonometry, periodic functions, elementary vector analysis and complex numbers. Students acquire a mathematical basis for understanding observations made in the study of AC circuits. During the course, circuit problems are solved using computer languages.

**Control Circuitry II and III (10 Hours/Week)**

(*Prerequisite for Control Circuitry II: Digital Circuits I. Prerequisite for Control Circuitry III: Control Circuitry II*) Process control circuitry, from basic switch control circuits to digital control circuits, are covered. AC and DC motors and motor controls are fabricated and demonstrated by the students.

**Industrial Electronics III and IV (10 Hours/Week)**

(*Prerequisite for Industrial Electronics III: Electronics II. Prerequisite for Industrial Electronics IV: Industrial Electronics III*) These courses cover all the components used to make up industrial control circuits. Mechanical as well as solid state devices are covered.

**Hydraulic, Pneumatic, Mechanical Systems I and II (5 Hours/Week)**

(*Corequisite for Mechanical and Hydraulics Systems I: Industrial Electronics III. Prerequisite for Mechanical and Hydraulics Systems II: Mechanical and Hydraulic Systems I*) These courses cover mechanical, hydraulic and pneumatic components and systems. The student constructs and verifies principles involving these systems in the laboratory.

**Electromechanical-Energy Projects Lab (5 Hours/Week)**

The student designs and constructs project(s) which involve such topics as solar tracking, energy conversion instrumentation and auditing, active and passive energy systems.

**BASIC Language Programming (7½ weeks, 5 Hours/Week)**

(*Prerequisite: Electronics Math I*) The various operating systems of a computer are introduced by providing practical knowledge and experience in the BASIC computer programming language. Topics covered in this course include, input/output statements, arithmetic operations, comparison and branching commands, use of subroutines and the library functions. Emphasis is placed on computer operation and software rather than on hardware.

**Digital Circuits II (10 Hours/Week)**

(*Prerequisite: Control Circuitry III*) This course provides students with practical experience in the functional operations of minicomputers. Topics covered include microprocessor interfacing with keyboards, video monitors, cassette recorders, teletypes and digital instruments. A/D and D/A converters and electromechanical control devices are also interfaced with the microprocessor. Students learn to use their knowledge and skills with both software and hardware in solving computer malfunctions.

**Electronics Communications I (10 Hours/Week)**

(*Prerequisite: Electronics II*) This course provides an in-depth study and practical analysis of broadcast communications systems. Topics included in this course consist of AM, FM, SSB, radio and television communications equipment and regulations. Specific equipment may cover not only the receiver but also the transmitter and its related monitoring or recording equipment. Contemporary training equipment, including sophisticated test instruments, and systematic troubleshooting techniques support a student's skills in learning how to maintain communications equipment.

**Electronics Communications II (7½ weeks, 10 Hours/Week)**

(*Prerequisite: Electronics Communications I and Industrial Electronics III*) Emphasis is placed on diagnostic testing and systematic troubleshooting of complex communications equipment. The equipment and topics may include color television receivers, closed circuit television, AM-FM stereo receivers, tape recorders, two-way radio systems, or associated monitoring and test instruments. This course provides support for students seeking FCC certification.

**Electronics Instruments (10 Hours/Week)**

(*Prerequisites: Electronics III and Semiconductor Principles and Applications*) Students learn proficiency in the calibration, maintenance and repair of electronics instruments. A working knowledge of functional operations including circuit theory and the complete calibration of several laboratory instruments is a requirement for completion of this course. The instrument types covered include industrial analog and digital measurement.

**FCC License Preparation (7½ weeks, 10 Hours/Week)**

(*Prerequisite: Electronics Communications II*) This is a preparatory class for the Federal Communications Commission (FCC) First or Second Class Radio-Telephone Operator License Examination.

**Introduction to Instrumentation (5 Hours/Week)**

(*Corequisite: Industrial Electronics III*) In this course, students construct and operate instrumentation which electromechanical technicians encounter on the job.

**Semiconductor Principles and Applications (5 Hours/Week)**

(*Prerequisite: Electronics II, Electronics Math II/ Electronics Circuit Analysis*) Semiconductor theory and circuit analysis are studied and applied to diode wave-shaping circuits, transistor amplifiers, latching circuits and opto-electronics circuits. Students learn proper biasing techniques, thermal effects and factors affecting amplifier frequency response.

**Shop Practices (5 Hours/Week)**

In this course, students develop skills in safety and the use of common machine tools and bench tools. Nomenclature, measurement, drawing, dimensioning, and schematic layout topics are covered. Students may take this course in place of one hour of Electronics Math I if permission has been granted by the program coordinator.

# Electronics

## 4 Trimesters

The Electronics Program allows students to select one of three program options which lead to a number of jobs in the electronics industry.

The Electronics Technology Option provides a variety of skills in both analog and digital electronics.

The Communications Systems Option offers specialized skills as electronics communications technicians. Emphasis is on analog electronics communications circuits and systems. However, digital communications are also covered.

The Digital Systems Option provides specialized skills as digital electronics technicians. Digital systems used in computers and instrumentation are emphasized. The use of other equipment with the microcomputer provides experience in the applications of digital-to-analog and analog-to-digital converters.

To qualify for a Diploma in Electronics, the student must successfully complete 1,650 hours of course work from one of the three program options. A Certificate of Electronics Testing is awarded after completion of all of the required instructional units in the first three trimesters of one of the options.

Completion of 900 hours of course work in Trimester I and II, including 600 hours of laboratory and 300 hours of related theory, is required for all Electronics Technology students. These courses provide a strong foundation in both analog and digital circuit principles.

The 750 hours in the third and fourth trimesters are divided evenly between theory and laboratory work.

In addition to 600 hours of required course work from Trimester III and IV of the Electronics Program, a student may select up to 300 hours of supporting course work. Support courses may be from either the Communication or Digital systems options, or both.

Lab facilities for the Electronics Program contain modern equipment for testing, troubleshooting, calibrating, analyzing and designing electronic circuits. Such electronic circuits may be found in communications equipment, computers, electronics instruments or many other electronics devices.



Some supporting courses are offered which may be taken in addition to the required courses. Students are encouraged to take these to broaden their education at T-VI.

Electronics students must pay a personal equipment fee of \$20 before entering the first trimester.

## ELECTRONICS PROGRAM

<i>Trimester I</i>	<i>Hours/Week</i>
Electronics I .....	15
Digital Circuits I .....	5
Electronics Math I .....	5-10
 <i>Trimester II</i>	
Electronics II .....	15
Digital Circuits II .....	5
Electronics Math II (7½ weeks) .....	10
Electronics Circuit Analysis (7½ weeks) .....	10
 <i>Trimester III</i>	
Electronics III .....	15
Semiconductor Principles and Applications .....	5
<i>Communications Systems Option</i>	
Electronics Communications I .....	10
<i>Digital Systems Option</i>	
Digital Circuits III (7½ weeks) .....	10
BASIC Language Programming (7½ weeks) .....	10
<i>Electronics Technology Option</i>	
Supporting Courses .....	10
 <i>Trimester IV</i>	
Electronics IV .....	10
Electronics Instruments .....	10
<i>Communications Systems Option</i>	
Electronics Communications II (7½ weeks) .....	10
FCC License Preparation (7½ weeks) .....	10
<i>Digital Systems Option</i>	
Digital Circuits IV .....	10
<i>Electronics Technology Option</i>	
Supporting Courses .....	10
 <i>Supporting Courses</i>	
BASIC Language Programming (7½ weeks) .....	10
Calculus for Electronics .....	5
Digital Circuits III (7½ weeks) .....	10
Digital Circuits IV .....	10
Electronics Communications I .....	10
Electronics Communications II (7½ weeks) .....	10
Employment Dynamics .....	3
FCC License Preparation (7½ weeks) .....	10
Reading Improvement .....	5
Shop Practices .....	5

## COURSE DESCRIPTIONS

### Electronics I (15 Hours/Week)

This course covers the basic concepts of direct current electricity, Ohm's Law, Kirchoff's Law, network theorems, meter circuits, magnetism, and an introduction to capacitance and inductance. The laboratory supports the classroom theory. A student also obtains a good working skill in the use of certain multimeters and handtools.

### Digital Circuits I (5 Hours/Week)

This course provides an introduction to some of the logic circuit devices and concepts which are applicable to many areas of the electronics industry. This course covers such topics as logic gates, truth tables and logic simplification. Sufficient laboratory time is provided to allow the student to wire circuits on breadboards using actual digital integrated circuits. Analysis and development of larger digital systems are covered in both theory and lab.

### Electronics Math I (5-10 Hours/Week)

Emphasis is given to beginning and advanced algebra in this course. Common number systems found in computers are also covered. One or two hours of this math course may be waived depending on a student's performance on a math waiver test. Shop Practices, Reading Improvement or Employee Dynamics could then be substituted for the waived portion of the course.

### Electronics II (15 Hours/Week)

*(Prerequisite: Electronics I and Electronics Math I)*  
The study of basic circuit laws is extended to alternating current so that students understand the effects of various circuit elements. Inductance, capacitance, transformers, vacuum tubes and semiconductors are introduced. Test equipment such as the oscilloscope, the function generator and the frequency counter are used in analyzing resonant circuits, filters and amplifiers.

### Digital Circuits II (5 Hours/Week)

*(Prerequisite: Digital Circuits I)* Clocked logic, flip-flops, counters, shift-registers and digital displays are demonstrated through both theoretical and experimental analysis. The topics covered in this course are essential building blocks of many digital controlled systems in computers, digital instrumentation and clocks.

### Electronics Math II (7½ weeks, 10 Hours/Week)

*(Prerequisite: Electronics Math I)* This course includes the study of basic trigonometry, periodic functions, elementary vector analysis, complex numbers and logarithms. Students acquire a mathematical basis for understanding observations made in the study of AC circuits and amplifiers.

### Electronics Circuit Analysis (7½ weeks, 10 Hours/Week)

*(Prerequisite: Electronics I and Electronics Math I and II)* Practical mathematical analysis of more complicated DC and AC circuits is emphasized in this course. Equivalent circuit solutions are performed on such circuits as voltage dividers, diodes, rectifiers, limiters and filters. Vacuum tube and semiconductor approximations are introduced on a basic level.

**Electronics III (15 Hours/Week)**

(Prerequisite: *Electronics II*) Principles of AM, FM and SSB communication are presented and related circuits studied and analyzed. Main topics include power supplies, amplifiers, oscillators, transmitters, receivers and high frequency transmission line theory with appropriate supportive lab work.

**Semiconductor Principles and Applications (5 Hours/Week)**

(Prerequisite: *Electronics II, Electronics Math II, Electronics Circuit Analysis*) Semiconductor theory and circuit analysis are studied and applied to diode wave-shaping circuits, transistor amplifiers, latching circuits and opto-electronics circuits. Students learn proper biasing techniques, thermal effects and factors affecting amplifier frequency response.

**Electronics Communications I (10 Hours/Week)**

(Prerequisite: *Electronics II*) This course provides an in-depth study and practical analysis of broadcast communications systems. Included are AM, FM, SSB, radio and television communications equipment and regulations. Specific equipment may cover the receiver and the transmitter and its related monitoring or recording equipment. Modern training equipment, including test instruments, and systematic troubleshooting techniques support a student's skills in learning how to maintain communications equipment.

**Digital Circuits III (7½ weeks, 10 Hours/Week)**

(Prerequisite: *Digital Circuits II*) This course provides advanced theory and practical experience in the application of integrated circuits to such systems as computers and digital instrumentation. Included in this course is the organization of a computer system including the CPU, bus structures, instruction sets, programming, and applications of micro- and minicomputers.

**BASIC Language Programming (7½ weeks, 10 Hours/Week)**

(Prerequisite: *Electronics Math I*) The various operating systems of a computer are introduced by providing practical knowledge and experience in the BASIC computer programming language. Topics covered include input/output statements, arithmetic, operations, comparison and branching, commands, use of subroutines and the library functions. Emphasis is placed on computer operation and software rather than on hardware.

**Electronics IV (10 Hours/Week)**

(Prerequisites: *Electronics III and Semiconductor Principles and Applications*) This course includes semiconductor theory and applications. Topics emphasized in this course are the function and design of circuits and systems using such devices as semiconductor amplifiers and switches, operational amplifiers and other linear IC's. Applications related to analog and digital transitional circuits are also surveyed.

**Electronics Instruments (10 Hours/Week)**

(Prerequisite: *Electronics III and Semiconductor Principles and Applications*) This course provides skills in the

calibration, maintenance and repair of electronics instruments. A working knowledge of functional operations, including circuits theory and the complete calibration of several laboratory instruments, is a requirement for completion of this course. The instruments covered include industrial analog and digital measurement types.

**Electronics Communications II (7½ weeks, 10 Hours/Week)**

(Prerequisite: *Electronic Communications I and Electronics III*) Emphasis is on diagnostic testing and systematic troubleshooting of complex communications equipment. The equipment and topics may include color television receivers, closed circuit television, AM-FM stereo receivers, tape recorders, two-way radio systems or associated monitoring and test instruments. This course provides support for students seeking FCC certification.

**FCC License Preparation (7½ weeks, 10 Hours/Week)**

(Prerequisite: *Electronics Communications II*) This is a preparatory class for the Federal Communications Commission (FCC) First or Second Class Radio-Telephone Operator License Examination.

**Digital Circuits IV (10 Hours/Week)**

(Prerequisite: *Digital Circuits III*) This course is designed to provide students with practical experience in the functional operations of minicomputers. Topics covered include microprocessor interfacing with keyboards, video monitors, cassette recorders, teletypes and digital instruments. A/D and D/A converters and electromechanical control devices are also interfaced with the microprocessor. Students learn to utilize their knowledge and skills with both software and hardware in solving computer malfunctions.

**Calculus for Electronics (5 Hours/Week)**

(Prerequisite: *Electronics Math II*) Topics covered are the basic concepts of limits, derivatives, integrals, areas, volumes and centroids. These concepts are applied to electronics problems and computer programs are used where relevant.

**Employment Dynamics (3 Hours/Week)**

The student is given practice in skills that, in addition to occupational skills, can help get and keep a job in the labor market. The student learns the importance of effective communications and training in listening, speaking, reading and writing.

**Reading Improvement (5 Hours/Week)**

This course helps students understand what they read, and students with special reading problems are counseled to enroll.

**Shop Practices (5 Hours/Week)**

In this course, students develop skills in safety and the use of common machine tools and bench tools. Nomenclature, measurement, drawing, dimensioning and schematic layout are topics which are covered. Students may take this course in place of one hour of Electronics Math I if permission has been granted by the program coordinator.

# Laser Electro-Optic Technology

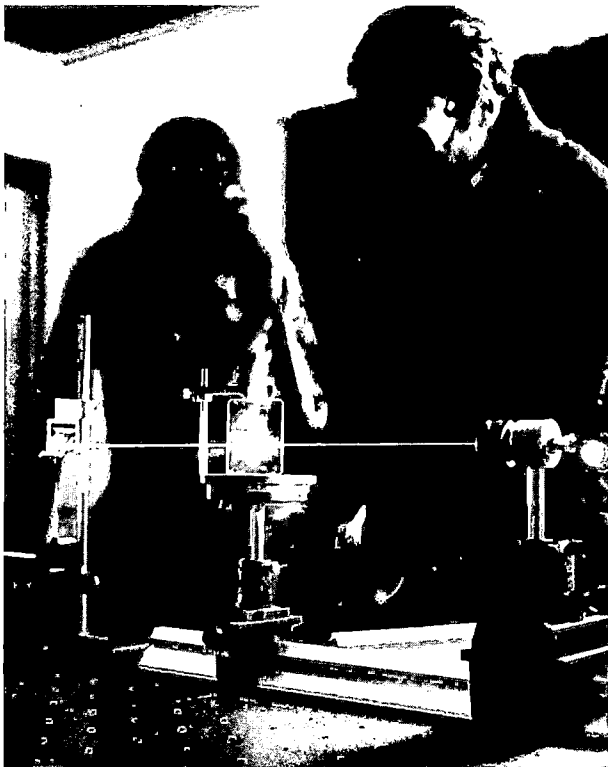
## 4 Trimesters

The emerging technologies of lasers and electro-optics require special training for those persons interested in entering a career in this rapidly growing industry. Lasers and electro-optic devices are used in a variety of areas, including construction and excavation, welding and cutting operations, communications systems, laboratory testing and measurement, data processing, photography, medicine, military and space projects, and research and development.

Entering students will be accepted during the Fall Trimester only and a \$20 personal equipment fee is required of beginning students.

The entire program leading to a diploma in Laser and Electro-Optic Technology is 1,725 hours in length of which 1,125 are laboratory work and 600 are related theory.

The program is offered in the Yale Annex Building. The facilities include modern classrooms and laboratories containing state-of-the-art lasers, lenses, mirrors and analytical test equipment.



## LASER ELECTRO-OPTIC TECHNOLOGY PROGRAM

<i>Trimester I</i>	<i>Hours/Week</i>
Electronics I .....	15
Electronics Math I .....	5-10
Digital Circuits I .....	5

<i>Trimester II</i>	<i>Hours/Week</i>
Electronics II .....	15
Optics .....	5
Math for LEOT .....	5
Introduction to Lasers .....	5

<i>Trimester III</i>	<i>Hours/Week</i>
Electronics III .....	15
Laser Technology .....	5
Digital Circuits II .....	5
Laser and Electro-Optic Components .....	5

<i>Trimester IV</i>	<i>Hours/Week</i>
Electronics Instruments .....	5
Digital Circuits III .....	5
Laser Projects .....	10
Devices and Applications .....	5
Laser and Electro-Optic Measurements .....	5

### *Supporting Courses*

Computer Programming .....	5
Reading Improvement .....	5
Shop Practices .....	5

## COURSE DESCRIPTIONS

### **Electronics I (15 Hours/Week)**

This introductory course covers the basic concepts of direct current electricity, Ohm's Law, Kirchoff's Law, network theorems, meter circuits, magnetism, capacitance and inductance. The laboratory supports the classroom theory. A student also obtains a good working skill in the use of certain multimeters and handtools.

### **Electronics Math I (5-10 Hours/Week)**

Emphasis is given to beginning and advanced algebra in this course. Common number systems found in computers are also covered. One or two hours of this math course may be waived depending on a student's performance on a math waiver test. Shop Practices, Reading Improvement or Employee Dynamics could then be substituted for the waived portion of the course.



**Digital Circuits I (5 Hours/Week)**

This course provides an introduction to some of the logic circuit devices and concepts which are applicable to many areas of the electronics industry. This course covers such topics as logic gates, truth tables and logic simplification. Sufficient laboratory time is provided to allow the student to wire circuits on breadboards using actual digital integrated circuits. Analysis and development of larger digital systems are covered in both theory and lab.

**Electronics II (15 Hours/Week)**

*(Prerequisite: Electronics I and Electronics Math I)*

The study of basic circuit laws is extended to alternating current so that students understand the effects of various circuit elements. Inductance, capacitance, transformers, vacuum tubes and semiconductors are introduced. Test equipment such as the oscilloscope, the function generator and the frequency counter are used in analyzing resonant circuits, filters and amplifiers.

**Optics (5 Hours/Week)**

*(Corequisite: Math for LEOT and Introduction to Lasers)* This course includes the study of geometric and wave optics principles. Techniques in the care and use of optical components are emphasized in the laboratory.

**Math for LEOT (5 Hours/Week)**

*(Prerequisite: Electronics Math I)* This course includes the study of basic trigonometry, periodic functions; elementary vector analysis and complex numbers. Students acquire a mathematical basis for understanding observations made in the study of AC circuits and geometric optics.

**Introduction to Lasers (5 Hours/Week)**

This course introduces students to the operation of a laser, the principles of a laser, its output characteristics and safe operating practices. Laboratory work includes the use of the low helium-neon laser.

**Electronics III (15 Hours/Week)**

*(Prerequisite: Electronics II)* Principles of AM, FM and SSB Communication are presented and related circuits studied and analyzed. Main topics include power supplies, amplifiers, oscillators, transmitters, receivers, and high frequency transmission line theory with supporting lab work.

**Laser Technology (5 Hours/Week)**

*(Prerequisite: Introduction to Lasers)* In this course, specialized groupings of lasers are studied along with power supplies, flash lamps and other power sources which are used in the technology. Laser systems which are studied are ion gas lasers, molecular gas lasers, solid-state lasers, semi-conductor lasers and organic dye lasers.

**Digital Circuits II (5 Hours/Week)**

*(Prerequisite: Digital Circuits I)* Clocked logic, flip-flops, counters, shift-registers and digital displays are demonstrated through both theoretical and experimental analysis. The topics covered in this course are essential building blocks of many digital controlled systems in computers, digital instrumentation and clocks.

**Laser and Electro-Optic Components (5 Hours/Week)**

*(Corequisite: Optics)* This course deals with the tools of the technology. Lenses, filters and other components are studied from the point of view of quality and cost.

**Electronics Instruments (5 Hours/Week)**

*(Prerequisite: Electronics III and Semiconductor Principles and Applications)* Proficiency in the calibration, maintenance and repair of electronics instruments are sought in this course. A working knowledge of functional operations including circuit theory and the complete calibration of several laboratory instruments is a requirement for completion of this course. The instruments covered include industrial analog and digital measurement types.

**Digital Circuits III (7½ weeks, 5 Hours/Week)**

*(Prerequisite: Digital Circuits II)* This course provides advanced theory and practical experience in the application of integrated circuits to such systems as computers and digital instrumentation. Included in this course is the organization of a computer system including the CPU, bus structures, instruction sets, programming, and applications of micro and minicomputers.

**Laser Projects (10 Hours/Week)**

*(Prerequisite: Optics and Laser and Electro-Optic Components)* Students gain experience with a wide variety of materials, fabrication and calibration methods in this class. They are encouraged to use their own ingenuity in solving design problems. The importance of keeping an accurate notebook is stressed.

**Devices and Applications (5 Hours/Week)**

*(Prerequisite: Laser Technology and LEO Components)* The purpose of this course is to study the theory and application of special purpose devices used to measure laser output parameters, to manipulate laser beams and to modulate or Q-switch lasers.

**Laser and Electro-Optic Measurements (5 Hours/Week)**

*(Corequisite: Laser Projects)* In this course, emphasis is on standard measurement techniques in Laser Electro-Optics Technology. The principles which underlie the operation of spectrophotometers and interferometers are studied.

**Computer Programming (5 Hours/Week)**

The purpose of this course is to introduce the student to a programming language. Also included are the study and use of programming techniques.

**Reading Improvement (5 Hours/Week)**

This course is to help students understand what they read. Students with special reading problems are counseled to enroll.

**Shop Practices (5 Hours/Week)**

*(Prerequisite: Permission of the Electronics Math I Instructor or completion of Electronics Math I)* In this course, students develop skills in safety and the use of common machine tools and bench tools. Nomenclature, measurement, drawing, dimensioning and schematic layout are topics which are covered. This course may be taken in place of one hour of Electronics Math I.

# TRADES

Most classes in the trades, the largest skill cluster at T-VI, meet in two trades buildings at Coal and University SE which contain classrooms, lab space and a live work area. Programs not housed there meet across Coal Avenue on the main campus, and Graphic Arts is offered at the east campus.

All of the trades programs accept new students at the beginning of each trimester and two programs—Sheet Metal and Graphic Arts—admit new students every two weeks.

Admissions information concerning all trades programs is available in the main campus lobby and at the east campus.

Entrance requirements shared by all of the trades programs are that the applicant be able to lift materials weighing 50 pounds and be free of allergies or health conditions which cannot be controlled and which would endanger his or her own safety or the safety of others. These include allergies to such things as fuels, solvents, detergents, lime or cement products, sheet metal fluxes or sawdust, depending on the program. Normal color vision and correctable depth perception are required in several programs.

Each applicant will have an interview with an admissions counselor and may also be interviewed by the program coordinator during the admissions process. The applicant must also make a satisfactory score on the pre-admissions tests to be admitted to the program.

Students in the trades must furnish their own shop clothes appropriate for the program.



## SUPERVISED WORK EXPERIENCE

Supervised work experience is for students who have acquired most of the skills and work attitudes needed to succeed in an entry-level job. In two trimester programs, students may apply for this option during the final half-trimester; in longer programs, during the final trimester.

This on-the-job experience may be substituted for the laboratory portion of a program and is based on a training plan developed by the cooperating employer and the T-VI instructional staff. Before beginning a supervised work experience, the student must get the approval of the instructor, program coordinator, counselor, department chairman and the Associate Director of Student Services.

The supervised work experience option is not eligible for Veterans Administration benefits.

# Air-Conditioning, Heating and Refrigeration

## 3 Trimesters

The Air-Conditioning, Heating and Refrigeration Program prepares students for successful entry into the installation, maintenance and service field in this specialty.

With further training offered by employers at the dealer, distributor and mechanical contractor level, the graduate of this program should be able to assist the journeyman mechanic in installing the equipment necessary to complete residential and light commercial projects.

This includes the installation of mechanical equipment and electrical controls; servicing various air-conditioning, heating and refrigeration components; troubleshooting the systems and performing preventive maintenance that is required.

In the lab, students are introduced to condensing units, evaporator units, compressors, vacuum pumps, temperature analyzers, ice makers, temperature recorders, transport refrigeration units, volt-ohm-amp meters, domestic heating and cooling equipment, commercial heating and cooling equipment and many other types of equipment used in the industry.

The year-long program totals 1,350 hours of instruction, of which 600 hours are laboratory work and 750 hours are supporting courses.

A student may leave the program when a training objective is reached and receive a rating sheet detailing the skills mastered. To earn a diploma, a student must successfully complete a total of 1,200 hours of which 600 are laboratory work and 600 are related theory.

Air-Conditioning, Heating and Refrigeration students must pay an equipment fee of \$80 before entering the first trimester and \$50 before each additional trimester, totaling \$180.

## ENTRANCE REQUIREMENTS

1. Must make an acceptable score on a mathematics test.
2. Must be able to lift materials and equipment weighing up to 50 pounds.

## AIR-CONDITIONING, HEATING AND REFRIGERATION PROGRAM

<i>Trimester I</i>	<i>Hours/Week</i>
Air-Conditioning, Heating and Refrigeration	
Lab I .....	15
Air-Conditioning, Heating and Refrigeration	
Theory I .....	5
Air-Conditioning, Heating and Refrigeration	
Math .....	5
Control Circuitry I .....	5

<i>Trimester II</i>	<i>Hours/Week</i>
Air-Conditioning, Heating and Refrigeration	
Lab II .....	15
Air-Conditioning, Heating and Refrigeration	
Theory II .....	5
Supporting Courses .....	5-10

<i>Trimester III</i>	<i>Hours/Week</i>
Air-Conditioning, Heating and Refrigeration	
Lab III .....	10
Air-Conditioning, Heating and Refrigeration	
Theory III .....	5
Supporting Courses .....	10-15

<i>Supporting Courses</i>	<i>Hours/Week</i>
Air-Conditioning, Heating and Refrigeration	
Math II .....	.5*
Algebra for Trades .....	.3
Blueprint Reading I .....	.2
Control Circuitry II .....	.5*
Industrial Safety .....	.3
Systems Design .....	.3
Trigonometry for Trades .....	.3

\*Required for advanced Air-Conditioning, Heating and Refrigeration students.

## COURSE DESCRIPTIONS

### Air-Conditioning, Heating and Refrigeration Lab/Theory I (20 Hours/Week)

Beginning students learn shop safety; basic tools and equipment; introduction to physics and chemistry; electrical circuits and laws of electricity; motor control devices and electric meters; test and measuring equipment; and installation, maintenance and service knowledge for domestic refrigerators and freezers and residential-type heating and cooling systems.

### **Air-Conditioning, Heating and Refrigeration Math I (5 Hours/Week)**

This course covers basic arithmetic, percentage, powers and roots, direct measurement, basic metrics, simple formulas, basic electrical formulas and ratios and proportions as applied to the air-conditioning, heating and refrigeration field.

### **Control Circuitry I (5 Hours/Week)**

This course is designed to reinforce the background knowledge required in diagnosis and service of environmental equipment with emphasis on the function and understanding of electrical control circuitry. Included are transformers, motors, relays, contractors, starters and circuit protection.

### **Air-Conditioning, Heating and Refrigeration Lab/Theory II (20 Hours/Week)**

*(Prerequisite: Trimester I Lab and Theory or equivalent)* Instruction is provided in the installation, maintenance and service of light commercial air-conditioning, heating and refrigeration systems. Emphasized are heat pumps, electrical problems and controls, gas-electric packages, compressors, condensers, pressure-reducing devices, load calculations, heat transfer, temperature-humidity charts and safety code for mechanical refrigeration.

### **Air-Conditioning, Heating and Refrigeration Lab/Theory III (15 Hours/Week)**

*(Prerequisite: Trimester II Lab and Theory or equivalent)* The installation, maintenance and service of commercial air-conditioning, heating and various refrigeration systems, including transport refrigeration, are covered.

### **Air-Conditioning, Heating and Refrigeration Math II (5 Hours/Week)**

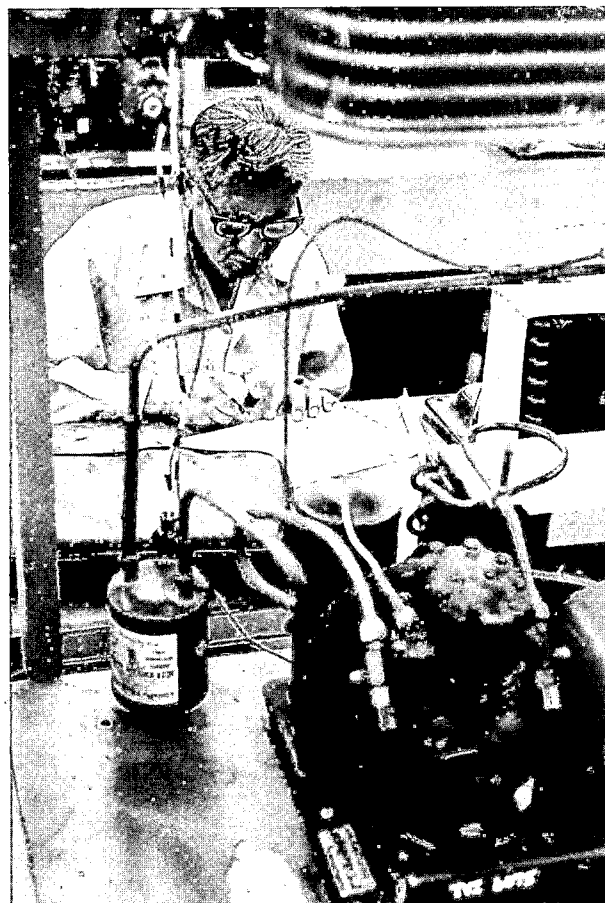
*(Prerequisite: Air-Conditioning, Heating and Refrigeration Math I or equivalent)* Rules and formulas related to volumes, areas, ratio and proportion; geometric construction; velocity and pressure; and various mathematical laws are applied.

### **Algebra for Trades (3 Hours/Week)**

*(Prerequisite: Air-Conditioning, Heating and Refrigeration Math II or equivalent)* This course includes basic algebraic manipulation of signed numbers, order of operation, inverse operation, linear equations, straight-line graphs, monomials, polynomials, factoring, algebraic functions, fractional equations, exponents and quadratic equations.

### **Blueprint Reading I (2 Hours/Week)**

Instruction covers terminology; free-hand sketching of orthographic and isometric drawings; construction details; abbreviations and symbols; electrical constants and unit prefixes; schematics and color code for piping; building trade symbols; types of building construction and insulation; duct systems; ventilation plans; interpretation of mechanical and electrical plans; codes; and design concepts.



### **Control Circuitry II (5 Hours/Week)**

*(Prerequisite: Control Circuitry I or equivalent)* This course includes the study of the design, installation and troubleshooting of air-conditioning, heating and refrigeration control systems. Instructional emphasis will be placed on electrical, pneumatic and solid state circuitry.

### **Industrial Safety (3 Hours/Week)**

This course includes training in the Red Cross Multimedia System and cardiopulmonary resuscitation, for which Red Cross Certification is issued upon successful completion. Occupational safety is stressed.

### **Systems Design (3 Hours/Week)**

This course includes the study of the design, layout and application of air distribution duct systems for air-conditioning. Instructional emphasis is on basic principles of physics, psychrometric theory related to human comfort, the principles of fluid flow and the thermodynamics of the refrigeration cycle.

### **Trigonometry for Trades (3 Hours/Week)**

*(Prerequisite: Algebra for Trades or equivalent)* Trigonometric functions of acute angles, right angles and oblique triangles are covered in this course.

# Automotive Collision Repair

## 2 Trimesters

The Automotive Collision Repair Program prepares a student for entry-level employment as a metal man or painter in the automotive industry. The student should be able to qualify in the area of his or her choice and ability.

In the first trimester, students are given instruction and practical experience in minor body work and basic automotive painting procedures. Students are encouraged to specialize as they progress in their training. The quality of work and the flat rate manual are used to determine the student's rating.

The second trimester includes advanced metal and painting. The metal man does more complex removal and replacement of panels and front-end sections, and medium frame and body damage repair. Quality and flat rate skills are used for evaluating students. The painting area rating is based on quality and the amount of supervision required.

The Auto Collision Repair Lab contains sanders, buffers, air chisels, paint sprayers, welding equipment, paint booths, frame machines and many other factory and dealership training units.

The eight-month program provides up to 900 hours of instruction, of which 600 are laboratory work and 300 hours are supporting courses.

A student may leave the program when a training objective is reached and receive a rating sheet detailing the skills mastered. To earn a diploma, a student must successfully complete a total of 825 hours of which 600 are laboratory work and 225 are related theory.

Automotive Collision Repair students must pay an equipment fee of \$80 before entering the first trimester and an additional \$50 before the second trimester, totaling \$130. They must also provide their own industrial safety glasses.

## ENTRANCE REQUIREMENTS

1. Must make an acceptable score on a mathematics test.
2. Must be free of chronic respiratory diseases.
3. Must be able to lift materials and equipment weighing up to 50 pounds.

## AUTOMOTIVE COLLISION REPAIR PROGRAM

<i>Trimester I</i>	<i>Hours/Week</i>
Auto Collision Repair Lab I .....	20
Auto Collision Repair Theory I .....	5
Oxyacetylene Welding .....	3
Auto Collision Repair Math .....	2
<i>Trimester II</i>	
Auto Collision Repair Lab II .....	20
Auto Collision Repair Theory II .....	5
Supporting Courses .....	0-5
<i>Supporting Courses</i>	
Estimating .....	2
Fundamentals of Electricity .....	3
Industrial Safety .....	3

## COURSE DESCRIPTIONS

### Automotive Collision Repair Lab/Theory I (25 Hours/Week)

This laboratory practice course teaches shop safety, chassis construction, hand and power tool operation, minor fender and body section repairing, basic body pulls, trim and hardware replacement, preparing for painting and basic painting processes.

Theory includes fundamental information on body and chassis nomenclature, metal alloy characteristics, uses of grinders and abrasives, metalworking techniques, metal finishing with lead and reinforced plastic, and basic painting procedures.

### Oxyacetylene Welding (3 Hours/Week)

This laboratory practice class includes safety, general tools and equipment, sources of heat, operational procedures, metals and their properties, and applications of oxyacetylene welding.

### Auto Collision Repair Math (2 Hours/Week)

This course reviews basic arithmetic operations including surface measurements and direct measurements, ratio and proportion, and percentage. Rules and formulas, volume, basic crash book estimating, work orders, flat rate costs and the metric system are thoroughly covered.

### Automotive Collision Repair Lab/Theory II (25 Hours/Week)

(Prerequisite: *Auto Collision Repair Lab and Theory I or equivalent*) The laboratory practice in this course covers body section replacement and alignment, interior trim removal and replacement, spray painting procedures and processes, surface buffing and polishing, body pulls and basic unitized body alignment.

# Automotive Mechanics

## 3 Trimesters

The Automotive Mechanics Program helps the student gain the technical knowledge and occupational skills necessary to enter the automotive service field.

Three different specialties, each one-trimester long, may be taken in any order, provided space is available in the class and specific entrance requirements and prerequisites have been met.

In one specialty, instruction is in the fundamentals of engine operation and construction; engine testing and diagnosis; and engine disassembly, inspection, cleaning, reconditioning, reassembly and check-out.

In another specialty, emphasis is placed on the basics of electricity, tests and operation of batteries and cranking motors; and charging, ignition, fuel, emission control and air-conditioning systems.

During a third trimester, brakes, front suspensions, steering, alignment, transmissions and drive train mechanisms are emphasized.

The program is housed in four working labs specifically designed for automotive front-end alignment, wheel balance, brake service, transmissions service, electrical, tune-up and engine overhaul. The well-equipped labs will introduce the student to modern ignition scopes, alternator-starter testers, transmission and engine dynamometers, wheel balancers, brake lathes, vacuum pumps, distributor testers, compression testers, micrometer calipers, welding equipment, timing lights, pullers and many other types of equipment currently in use in the industry.

A student may leave the program when a training objective is reached and receive a rating sheet detailing the skills mastered. To earn a diploma, a student must successfully complete a total of 1,350 hours of which 900 are laboratory work and 450 are related theory.

Automotive Mechanics students must pay an equipment fee of \$80 prior to entering the first trimester and \$50 before each additional trimester, totaling \$180.



During the theory section, students are instructed in frame and unitized body alignment. Body straightening on panels and sections, clip replacement, accessory removal and replacement, finishing procedures and processes, and advanced estimating are covered. Instruction is also provided in the basic principles of electricity; schematic reading; series, parallel and series-parallel circuits; alternating and direct current; and basic automotive electrical systems encountered in automotive collision repair areas.

### Estimating (2 Hours/Week)

*(Prerequisite: Auto Collision Repair Math or equivalent)* This combination laboratory and theory course is designed to provide a detailed study of the procedures of estimating. Emphasis will be placed on appraisal of auto damage both by visual inspection and use of the crash book.

### Fundamentals of Electricity (3 Hours/Week)

This course provides instruction in the basic principles of electricity; terminology; electrical components and symbols; schematic reading; conductors, insulators and resistors; Ohm's Law and Watt's Law; series, parallel and series-parallel circuits; alternating and direct current; transformers; and common practices in electrical circuits.

### Industrial Safety (3 Hours/Week)

This course includes training in the Red Cross Multimedia System and cardiopulmonary resuscitation, for which Red Cross Certification is issued upon successful completion. Occupational safety is stressed.

## ENTRANCE REQUIREMENTS

1. Must make an acceptable score on a mathematics test.
2. Must be free of chronic respiratory diseases and allergies to automotive fuels and solvents.
3. Must be able to lift materials and equipment weighing up to 50 pounds.

## AUTOMOTIVE MECHANICS PROGRAM

<i>Specialty I</i>	<i>Hours/Week</i>
Automotive Engines and Engine Systems Lab .....	20
Automotive Engines and Engine Systems Theory .....	5
Supporting Courses .....	5

<i>Specialty II</i>	
Automotive Electrical and Tune-Up Lab .....	20
Automotive Electrical and Tune-Up Theory .....	5
Supporting Courses .....	5

<i>Specialty III</i>	
Brakes, Front-End Alignment and Drive Trains Lab .....	20
Brakes, Front-End Alignment and Drive Trains Theory .....	5
Supporting Courses .....	5

<i>Supporting Courses</i>	
Automotive Air-Conditioning I .....	3**
Automotive Emission Control Systems I .....	2
Automotive Diagnostic Procedures .....	2
Basic Automotive Math .....	3*
Basic Tool Application .....	3
Carburetion .....	5
Geometry for Trades .....	3
Industrial Safety .....	3
Precision Measurement .....	2*

\*Required for beginning Automotive Mechanics students.

\*\*Offered during Winter and Summer trimesters only.

## COURSE DESCRIPTIONS

### Automotive Engines and Engine Systems Lab/Theory (25 Hours/Week)

(Prerequisite: Specific Entrance Requirements or Satisfactory Completion of Previous Option) Instruction in shop safety, basic tools and equipment, engine systems operation and maintenance; engine operation and construction; engine testing and diagnosis; and engine disassembly, inspection, cleaning, reconditioning, reassembly and check-out is offered. Reading and interpreting technical data, proper shop procedures and job operations are also included.



### Automotive Electrical and Tune-Up Lab/Theory (25 Hours/Week)

(Prerequisite: Specific Entrance Requirements or Satisfactory Completion of Previous Option) Instruction covers basic electricity; schematics; batteries; cranking motors; and charging, ignition, fuel and emission control systems. Auto air-conditioning is studied as a separate unit of instruction.

### Brakes, Front-End Alignment and Drive Trains Lab/Theory (25 Hours/Week)

(Prerequisite: Specific Entrance Requirements or Satisfactory Completion of Previous Option) Brakes, front suspensions, steering, alignment, transmissions, drive train mechanisms, troubleshooting techniques, technical research and power flow circuits are included.

### Automotive Air-Conditioning I (3 Hours/Week)

Safety, diagnosis, repair and service of current models of automotive air-conditioning are covered in this theory and demonstration class.

### Automotive Emission Control Systems I (2 Hours/Week)

This theory-demonstration course offers instruction in the diagnosis, maintenance and service of emission control components, systems and related control devices. Heavy use is made of circuitry and trouble-shooting diagrams.

### Automotive Diagnostic Procedures (2 Hours/Week)

To emphasize the latest methods and techniques of diagnosis used in the highly technical automotive service industry, this advanced troubleshooting course provides practical procedures in the use of test equipment. Future professional mechanics will also be introduced to the national mechanics certification programs.



# Carpentry

## 2 Trimesters

The Carpentry Program provides students with practical and realistic job entry-level skills for the construction industry.

During the first trimester, the fundamentals of residential framing and tools of the trade are taught. In the second trimester, emphasis is placed on interior finish, finish carpentry, basic construction and installation of cabinets, millwork and estimating.

The Carpentry Program is housed in a lab specifically designed for carpentry as well as an outside livework area. The well-equipped lab includes drill presses, band saws, doweling machine, table saws, surfacer and many other types of equipment used in industry.

The eight-month program provides up to 900 hours of instruction, of which 450 hours are laboratory experiences and 450 are supporting courses.

A student may leave the program when a training objective has been reached and receive a rating sheet detailing the skills mastered. To earn a diploma, a student must successfully complete a total of 850 hours of which 450 are laboratory work and 375 are related theory.

Carpentry students must pay an equipment fee of \$80 before entering the first trimester and an additional \$50 before the second trimester, totaling \$130. They must also provide their own carpenter's overalls or nail apron.

## ENTRANCE REQUIREMENTS

1. Must make an acceptable score on a mathematics test.
2. Must be free of chronic wood or wood product allergies.
3. Must be able to lift materials and equipment weighing up to 50 pounds.

### Basic Automotive Math (3 Hours/Week)

This trade-related course reviews basic mathematics, English and metric measurement systems, basic geometric construction and calculations, machinists' scales, basic right-angle measurements and calculations, and the various thread systems used in the industry.

### Basic Tool Application (3 Hours/Week)

Shop safety, basic benchwork, hand tools, machine construction, and basic operations on the drill press and pedestal grinder are taught in this combination theory-demonstration and training class.

### Carburetion (5 Hours/Week)

This combination theory-laboratory class covers late model carburetors with emphasis placed on carburetor operation and circuitry, fuel system and carburetion troubleshooting. Proper service procedures are stressed, and overhaul procedures and techniques are also covered.

### Geometry for Trades (3 Hours/Week)

*(Prerequisite: Basic Automotive Math I or equivalent)*  
This course includes geometric construction, geometric solutions, volume, capacity and simple formula manipulation.

### Industrial Safety (3 Hours/Week)

This course includes training in the Red Cross Multimedia System and cardiopulmonary resuscitation, for which Red Cross Certification is issued upon successful completion. Occupational safety is stressed.

### Precision Measurement (2 Hours/Week)

Precision measuring tools used in the automotive industry are emphasized. Practical training applications on the English and metric micrometer caliper, vernier caliper, depth micrometer, telescoping gauges and dial indicators are the main part of the course.





## CARPENTRY PROGRAM

<i>Trimester I</i>	<i>Hours/Week</i>
Carpentry Lab I .....	15
Carpentry Theory I .....	5
Carpentry Math I .....	5
Blueprint Reading I .....	5
<i>Trimester II</i>	
Carpentry Lab II .....	15
Carpentry Theory II .....	5
Supporting Courses .....	5-10
<i>Supporting Courses</i>	
Algebra for Trades .....	3
Basic Structural Methods.....	3
Blueprint Reading II .....	2
Carpentry Math II .....	3
Concrete Technology .....	2
Construction Estimating .....	3
Industrial Safety .....	3

## COURSE DESCRIPTIONS

### Carpentry Lab and Theory I (20 Hours/Week)

This combined theory and laboratory practice class provides instruction in hand and power tools, site layout and foundations, rough framing, roof framing, structural shell basics, stair construction, exterior finish and safety.

### Carpentry Math I (5 Hours/Week)

Basic arithmetic, reading the rule, whole numbers, common and decimal fractions, cubic and weight measures, area calculations, surface and direct measurements and framing square computations are included.

### Blueprint Reading I (5 Hours/Week)

This course offers basic instruction in sketching, reading working drawings, blueprints and specifications for residential and light commercial work.

### Carpentry Lab and Theory II (20 Hours/Week)

*(Prerequisite: Carpentry Lab and Theory I or equivalent)* Materials covered in this course are a continuation of Trimester I lab/theory, with emphasis on finish carpentry, basic construction and installation of cabinets and millwork.

### Algebra for Trades (3 Hours/Week)

*(Prerequisite: Carpentry Math II or equivalent)* This course includes basic algebraic manipulation of signed numbers, order of operation, inverse operation, linear equations, straight-line graphs, monomials, polynomials, factoring, algebraic fractions, fractional equations, exponents and quadratic equations.

### Basic Structural Methods (3 Hours/Week)

This course covers the basics of statics and strength of materials with emphasis on fundamental terms, forces, moments, noncurrent-coplanar forces (trusses), static and kinetic friction, simple stresses, properties of materials, beams, shear forces and bending moments, beam design and columns.

Practical applications of the above design criteria are stressed as referenced to the uniform building code applications and interpretations and to prevention of structural failures in the building process.

### Blueprint Reading II (2 Hours/Week)

*(Prerequisite: Blueprint Reading I or equivalent)* This course includes an introductory study of blueprint applications to residential tract homes, multiple family dwellings and commercial buildings.

### Carpentry Math II (3 Hours/Week)

*(Prerequisite: Carpentry Math I or equivalent)* Instruction is provided in the use of rules and formulas, ratio and proportion, volume, geometric construction, basic surveying computations and estimating.

### Concrete Technology (2 Hours/Week)

Concrete Technology introduces the students to the history, development and present use of concrete in the construction industry. The chemistry of cements will be covered in depth, types of aggregates used in concrete, design and control of concrete, control of concrete mixes, precast concrete and various forming systems will also be covered.

### Construction Estimating (3 Hours/Week)

Construction Estimating is intended for those students in the building trades who are interested in being able to estimate the amount of material, time and equipment required to complete a construction project.

### Industrial Safety (3 Hours/Week)

This course includes training in the Red Cross Multimedia System and cardiopulmonary resuscitation, for which Red Cross Certification is issued upon successful completion. Occupational safety is stressed.

# Diesel Mechanics

## 4½ Trimesters

This program is the only state-approved diesel mechanics training course in New Mexico. It provides students with the technical knowledge and skills needed for entry into the diesel industry.

Job projections, both statewide and nationally, show that a great number of new mechanics in this field will be needed in the future.

Students learn basic engine block design, component parts disassembly, inspection and re-assembly, diesel engine accessories, introduction to diagnosis and troubleshooting, and electrical and injection system component replacement in the first trimester.

Second trimester instruction covers engine overhaul, troubleshooting and failure analysis, major causes of engine operational or performance failure and reclaiming engine procedures.

In the third trimester students work with transmissions, final drives, clutches, brakes and related hydraulics. Diesel equipment and related preventive maintenance are included. Basic and advanced electricity, various heavy duty electrical systems, hydraulic accessories and testing programs, and corrective measures are studied during the last part of the program. Emphasis is on various fuel injection systems, injectors, governors and analysis procedures.

The program is held in five working labs specifically designed for diesel mechanics activities. In the labs, students are introduced to modern fuel injection calibration stands, engine dynamometers, transmission testing equipment, starter tester, alternator/generator tester, a number of the most widely-used diesel engines, manual and automatic transmissions, and related equipment.

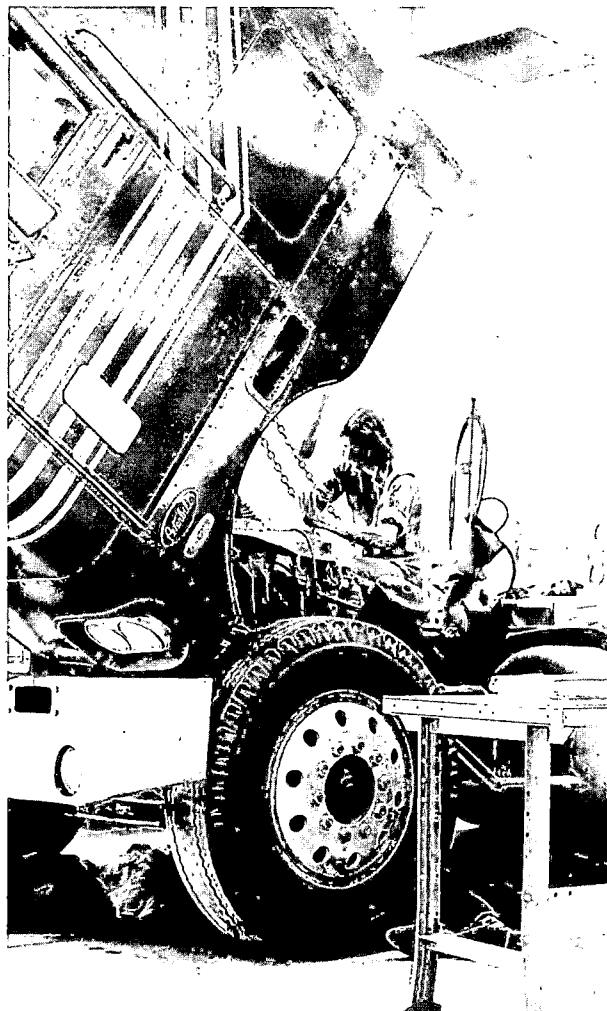
The 18-month program provides up to 1,988 hours of instruction of which 1,125 are laboratory work and 863 hours are supporting courses.

A student may leave the program when a training objective is reached and receive a rating sheet detailing the skills mastered in the program. To earn a diploma, a student must successfully complete a total of 1,838 hours of which 1,125 are laboratory work and 713 are related theory.

Diesel Mechanics students must pay an equipment fee of \$80 before entering the first trimester and \$50 before each additional trimester, totaling \$280. They must also provide their own industrial safety glasses or goggles.

## ENTRANCE REQUIREMENTS

1. Must make an acceptable score on a mathematics test.
2. Must be free of chronic respiratory diseases and allergies to diesel fuels and solvents.
3. Must be able to lift materials and equipment weighing up to 50 pounds.



## DIESEL MECHANICS PROGRAM

<i>Trimester I</i>	<i>Hours/Week</i>
Diesel Engine Principles and Accessories Lab . . . . .	15
Diesel Engine Principles and Accessories Theory . . . . .	5
Basic Blueprint Reading . . . . .	3
Diesel Math I . . . . .	5
Precision Measurement . . . . .	2
<i>Trimester II</i>	
Diesel Engine Overhaul Lab . . . . .	20
Diesel Engine Overhaul Theory . . . . .	5
Supporting Courses . . . . .	5
<i>Trimester III</i>	
Diesel Transmission, Final Drives, Clutches and Brakes Lab . . . . .	15
Diesel Transmission, Final Drives, Clutches and Brakes Theory . . . . .	5
Supporting Courses . . . . .	5-10
<i>Trimester IV</i>	
Diesel Electrical and Hydraulics Systems Lab . . . . .	15
Diesel Electrical and Hydraulics Systems Theory . . . . .	5
Supporting Courses . . . . .	5-10
<i>Trimester V (7½ Weeks)</i>	
Diesel Fuel Injection Lab . . . . .	20
Diesel Fuel Injection Theory . . . . .	5
<i>Supporting Courses</i>	
Air-Conditioning and Transport Refrigeration . . . . .	3
Algebra for Trades . . . . .	3
Applied Physics . . . . .	5
Basic Tool Application . . . . .	5
Diesel Math and Physics . . . . .	5
Fundamentals of Electricity . . . . .	3
Industrial Safety . . . . .	3
Oxyacetylene Welding . . . . .	5
Parts Procedures . . . . .	2
Strength of Materials . . . . .	3
Technical Report Writing . . . . .	3

### COURSE DESCRIPTIONS

#### **Diesel Engine Principles and Accessories Lab/Theory (20 Hours/Week)**

This course offers instruction in diesel shop safety and basic tools and equipment used by the diesel mechanic. Emphasis is placed on two- and four-stroke diesel engines, including basic engine cylinder block assembly design, component parts, disassembly, inspection and reassembly; fits, tolerances and service specifications; lubricating, cooling, air intake and fuel systems; governor control design; and diagnosis and troubleshooting. Basic procedures for identifying and replacing defective electrical and fuel injection components without resorting to major teardown are included.

#### **Basic Blueprint Reading (3 Hours/Week)**

Basic instruction in reading and interpreting drawings is offered in this course. Emphasis is on terminology, details, welding and drawing abbreviations and symbols, schematics and sketching of orthographic and isometric drawings.

#### **Diesel Math I (5 Hours/Week)**

This course, directly related to Diesel Engine Principles and Accessories Lab and Theory, reviews basic arithmetic operations. Included are fractions and decimals, ratios and proportions, use of related formulas, graphs, gear calculations and metrics. Time is spent calculating engine schedules for most common makes of diesel engines.

#### **Precision Measurement (2 Hours/Week)**

Precision measuring tools used in the industry will be emphasized. Practical training applications on the English and metric micrometer caliper, vernier caliper, depth micrometer, telescoping gauges and dial indicators will be the main part of the course.

#### **Diesel Engine Overhaul Lab/Theory (25 Hours/Week)**

*(Prerequisites: Trimester I Lab and Theory or equivalent)* This combined laboratory and theory course deals heavily with diagnosis and repair of diesel engine failures and reduced operational capabilities, testing and troubleshooting. Damaged bearings, rings and other engine parts are studied to determine cause. Water pumps, oil pumps and other components are rebuilt.

#### **Diesel Transmissions, Final Drives, Clutches and Brakes Lab/Theory (20 Hours/Week)**

*(Prerequisites: Trimester II Lab and Theory or equivalent)* A laboratory practice class designed to give instruction in service, repair and troubleshooting of transmissions, torque convertors, final drives, crawler tractor undercarriages, clutches and brakes. Hydraulic principles and service specifications are thoroughly covered. Dealer pre-delivery service; preventive, field and operational maintenance; dealer service department periodic service; equipment operational procedures; oil analysis and use of lubricants; and an understanding of the equipment life expectancy with regard to the preventive maintenance program are covered.

#### **Diesel Electrical and Hydraulics Systems Lab/Theory (20 Hours/Week)**

*(Prerequisites: Trimester III Lab and Theory or equivalent)* This course offers instruction in basic and advanced diesel electricity, electrical circuits and components; carburetion on gasoline, liquified petroleum and natural gas engines; magneto design, construction and maintenance; and heavy-duty direct current usage in generators, regulators, cranking motors and their controls. Hydraulic pump operating principles, control devices, cylinders, tubing heat exchangers and hydraulic motors, fits, tolerances and service specifications are thoroughly covered. Test and service procedures are stressed throughout the course. The course also includes a study of technical data, specification materials and service reports needed by the diesel industry with emphasis on the preparation, collection of data, organization, style and format.

**Diesel Fuel Injection Lab/Theory (25 Hours/Week)**

*(Prerequisites: Trimester IV Lab and Theory or equivalent)* This combined theory and practice class provides instruction in fuel system design, theory, construction, operating principles and servicing procedures; distributor-type and multi-plunger fuel systems; injectors and governors; and troubleshooting and analysis sequence procedures.

**Air-Conditioning and Transport Refrigeration (3 Hours/Week)**

This industrially based theory-demonstration and training course offers students an understanding of the safety, diagnosis, repair and service of current models of diesel air-conditioning. In addition, this course will cover the refrigeration cycle of transport units with emphasis on the electrical systems of the diesel powered units.

**Algebra for Trades (3 Hours/Week)**

*(Prerequisite: Diesel Math and Physics or equivalent)* This course covers basic algebraic manipulation including signed numbers, order of operation, inverse operation, linear equations, straight-line graphs, monomials, polynomials, factoring, algebraic fractions, fractional equations, exponents and quadratic equations.

**Applied Physics (5 Hours/Week)**

*(Prerequisite: Diesel Math and Physics or equivalent)* A course in basic physics which will include physical measurement, equations and problem solving as related to forces, vectors, work and energy, simple machines and motion, forces, matter, fluids, temperature and heat, thermal expansion and electricity.

**Basic Tool Application (5 Hours/Week)**

A combination laboratory and theory course designed for instruction in shop safety; basic benchwork; precision measuring instruments; and basic operations on the drill press, lathe and band saw. The fundamental machining and benchwork operations on bushings, bearings, gear shifts, drilling and reaming holes in diesel engine blocks, transmission final drive housings, and accessories are thoroughly covered.

**Diesel Math and Physics (5 Hours/Week)**

*(Prerequisite: Diesel Math I or equivalent)* Use and manipulation of formulas used in the diesel engines trade and application of geometric figures and right angle functions are provided. Principles of physics affecting engine operation—including efficiency calculations, gas laws and inertia—are explained.

**Fundamentals of Electricity (3 Hours/Week)**

This practical course provides instruction in the basic principles of electricity; terminology; electrical components and symbols; schematic reading; conductors; insulators; resistors; Ohm's Law and Watt's Law; series, parallel and series-parallel circuits; alternating and direct current; transformers; and common practices in electrical circuits.

**Industrial Safety (3 Hours/Week)**

This course includes training in the Red Cross Multimedia System and cardiopulmonary resuscitation, for which Red Cross Certification is issued upon successful completion. Occupational safety is stressed.

**Oxyacetylene Welding (5 Hours/Week)**

This laboratory practice class includes safety practices, general tools and equipment, sources of heat, operational procedures, metals and their properties, and applications of oxyacetylene and arc welding to diesel repairs.

**Parts Procedures (2 Hours/Week)**

This course will provide the student with training in the use of manuals, number identification, components, and accessories, model and year applications.

**Strength of Materials (5 Hours/Week)**

*(Prerequisite: Diesel Math and Physics or equivalent)* This course covers the mathematics of stresses, forces and movements as related to structural members. The course also includes the basic concepts for further study in the design and analysis of machines and structures.

**Technical Report Writing (3 Hours/Week)**

Students will develop reports on conditions of existing equipment. Reports of recommendation and rejection for purchase of materials and equipment and accompanying letters, purchase orders, work orders, and billings will be emphasized. Written reports as they relate to blueprints, sketches and schematics will also be covered.

# Electrical Trades

## 2 Trimesters

This program provides students with entry-level skills for employment in the construction industry and related electrical trades as an electrician trainee.

During the first trimester, the fundamentals of installing residential electrical wiring, use of tools and equipment, and electrical codes are taught. In the second trimester, emphasis is on installation of electrical services for appliances and special equipment, calculating service entrances, application of codes, estimating electrical materials, and job planning and coordinating.

Electrical Trades is housed in a working lab, specifically designed for residential electrical work, which includes volt-ohm-amp meters, rotary hammers, hydraulic knock-out punches, power-actuated fastening tools, door openers, single phase motor controls, conduit benders and other equipment used in the industry.

The eight-month program provides up to 900 hours of instruction, of which 450 hours are laboratory and 450 hours are supporting courses.

A student may leave the program when a training objective is reached and receive a rating sheet detailing the skills mastered. To earn a diploma, a student must successfully complete a total of 825 hours of which 450 are laboratory work and 375 are related theory.

Electrical Trades students must pay an equipment fee of \$80 before entering the first trimester and an additional \$50 before the second trimester, totaling \$130.

## ENTRANCE REQUIREMENTS

1. Must make an acceptable score on a mathematics test.
2. Must be able to lift materials and equipment weighing up to 50 pounds.
3. Must have normal color vision.

## ELECTRICAL TRADES PROGRAM

<i>Trimester I</i>	<i>Hours/Week</i>
Electrical Trades Lab I .....	15
Electrical Trades Theory I .....	5
Electrical Math I .....	5
Blueprint Reading I .....	5
 <i>Trimester II</i>	
Electrical Trades Lab II .....	15
Electrical Trades Theory II .....	5
Supporting Courses .....	5-10
 <i>Supporting Courses</i>	
Blueprint Reading II .....	2
Construction Estimating .....	3
Control Circuitry .....	3
Electrical Math II .....	3
Industrial Safety .....	3

## COURSE DESCRIPTIONS

### Electrical Trades Lab and Theory I (20 Hours/Week)

This combined laboratory and related theory course provides instruction in safety; use of tools and equipment; electrical codes and utility regulations; basic electrical principles and measurements; wiring materials and



devices; splices and connections; wiring systems and circuits; installing outlets, switch boxes, nonmetallic sheathed cable, overcurrent devices, low voltage equipment, branch circuits and service entrances.

#### **Electrical Math I (5 Hours/Week)**

Covered are basic arithmetic and simple electrical formulas; various trade application problems involving calculations of materials; Ohm's law; series, parallel and combination circuits; mechanical work and power; and resistance of wire, size of wire and circuit loads.

#### **Blueprint Reading I (5 Hours/Week)**

This course offers basic instruction in sketching, reading working drawings, blueprints and specifications for residential and light commercial work.

#### **Electrical Trades Lab and Theory II (20 Hours/Week)**

*(Prerequisites: Trimester I Lab and Theory or equivalent)* Installation of range and clothes dryer circuits; electric service for water heaters, space heaters, motors and furnace controls; electric heating; service and metering equipment; remote control and outside wiring; signal and communication systems; methods of wiring flexible armored cable and electrical metallic tubing; modernizing electrical systems; electric lighting; electrical wiring design; and estimating electrical wiring and supplies for the job are included.

#### **Blueprint Reading II (2 Hours/Week)**

*(Prerequisite: Blueprint Reading I or equivalent)* This course includes a detailed study of electrical drawings;

knowledge of terms; methods of installation; local, state and national electrical codes; interpreting residential blueprints; and planning and coordinating the job.

#### **Construction Estimating (3 Hours/Week)**

This course is intended for those students in the building trades who are interested in estimating the amount of material, time and equipment required to complete a construction project.

#### **Control Circuitry (3 Hours/Week)**

This course is designed to reinforce the background knowledge required in service of environmental equipment with emphasis on the function and understanding of electrical control circuitry. Included are transformers, motors, relays, contactors, starters and circuit protection.

#### **Electrical Math II (3 Hours/Week)**

*(Prerequisite: Math I or equivalent)* Instruction in electrical rules and formulas, ratio and proportion, volume, basic principles of square root, trade application of geometric principles and right triangles, basic algebraic principles involving electrical efficiency, resistance of wiring and wire sizing, calculating service entrances and estimating materials for the electrical trades is provided.

#### **Industrial Safety (3 Hours/Week)**

This course includes training in the Red Cross Multimedia System and cardiopulmonary resuscitation, for which Red Cross Certification is issued upon successful completion. Occupational safety is stressed.



# Graphic Arts

## 2 Trimesters

This program provides students with entry level skills for employment in the offset printing industry or in-plant print/duplication shops. Instructional units are assigned on an individual basis and each unit may have specific prerequisites. For example, only students who can type may take the typesetting unit. Good spelling is required for the proofreading unit.

The program accepts new students every two weeks. However, students receiving Veterans Administration benefits must enter the program at the beginning of the trimester.

The program is housed in a lab which includes cameras, electrostatic master makers, plate-makers, line-up and finishing tables, paper cutters, standard and automatic offset presses, duplicators, headliners, bindery machines, typesetting machines, and other types of equipment used in the industry.

The eight-month program provides up to 900 hours of instruction. To earn a diploma, a student must successfully complete a total of 750 hours of which 450 are laboratory work and 300 are related theory.

When students leave the program, they receive a rating sheet listing the skills mastered.

Graphic Arts students must pay an equipment fee of \$25 before entering the first trimester.

## ENTRANCE REQUIREMENTS

1. Must make an acceptable score on a mathematics test.
2. Must be able to lift materials and equipment weighing up to 50 pounds.
3. Must be free of chronic allergies to lubricants, solvents, inks and photographic chemicals.
4. Must have normal color vision.

## GRAPHIC ARTS PROGRAM

<i>Trimester I</i>	<i>Hours/Week</i>
Graphic Arts Lab and Theory .....	25
Supporting Courses .....	0-5

<i>Trimester II</i>	<i>Hours/Week</i>
Graphic Arts Lab and Theory .....	25
Supporting Courses .....	0-5

## *Supporting Courses*

Geometry for Trades .....	3
Industrial Safety .....	3
Typing I .....	5
Typing II .....	5

## COURSE DESCRIPTIONS

### **Graphic Arts Lab and Theory I (25 Hours/Week)**

This combination laboratory and related theory course provides instruction in safety of tools, equipment, solvents and chemicals; use of tools and equipment; proportional design; composition, layout and pasteup; proofs, proofreading and corrections; basic type setting; cold type composition; papers and inks; basic set-up and operations of duplication and offset presses; bindery processes; and quality control.

### **Graphic Arts Lab and Theory II (25 Hours/Week)**

*(Prerequisite: Trimester I Lab and Theory or equivalent)* Students are exposed to more complex operations and set-ups on the various machines in this course. Emphasis is on quality control of the product; preventive and routine maintenance and adjustments of equipment; paper and inks; collating and bindery; camera and dark-room equipment; line copy and film developing; study of halftones and color separation printing; processing of offset plates; offset systems and designs, system controls, makeready, running and troubleshooting techniques; cost estimating and legal considerations; making line negatives and positives; surface plates; light filters; and stripping. Specialization will be encouraged in the final stages of training.

### **Geometry for Trades (3 Hours/Week)**

This course includes geometric layout, geometric solutions, volume, capacity and simple formula manipulation.

### **Industrial Safety (3 Hours/Week)**

This course includes training in the Red Cross Multimedia System and cardiopulmonary resuscitation, for which Red Cross certification is issued upon successful completion. Occupational safety is stressed.

### **Typing I (5 Hours/Week)**

Individual instruction permits a student to progress at his or her own pace. At the end of the course, a student should be able to type a minimum of 25 words per minute.

### **Typing II (5 Hours/Week)**

*(Prerequisite: Typing I or equivalent)* Students type straight copy, reports and forms. Emphasis is on the jobs the student is most likely to encounter in graphic arts work. Students should be able to type a minimum of 40 words per minute at the end of the course.

# Industrial Electrician

## 3 Trimesters

The Industrial Electrician program is designed to provide the student with entry level skills for employment in maintenance or industrial electrician specialties.

The program is housed in a well-equipped lab which includes industrial motor control systems; electric heat, emergency lighting, fire alarm and low-voltage lighting control panels; burglar alarm circuits, a trouble-shooting trainer and many other types of equipment used in the industry.

The one-year program provides up to 1,350 hours of instruction, of which 525 hours are laboratory practice and 825 hours are supporting courses.

A student may leave the program when a training objective is reached and receive a rating sheet detailing the skills mastered. To earn a diploma, a student must successfully complete a total of 1,200 hours of which 525 are laboratory work and 675 are related theory.

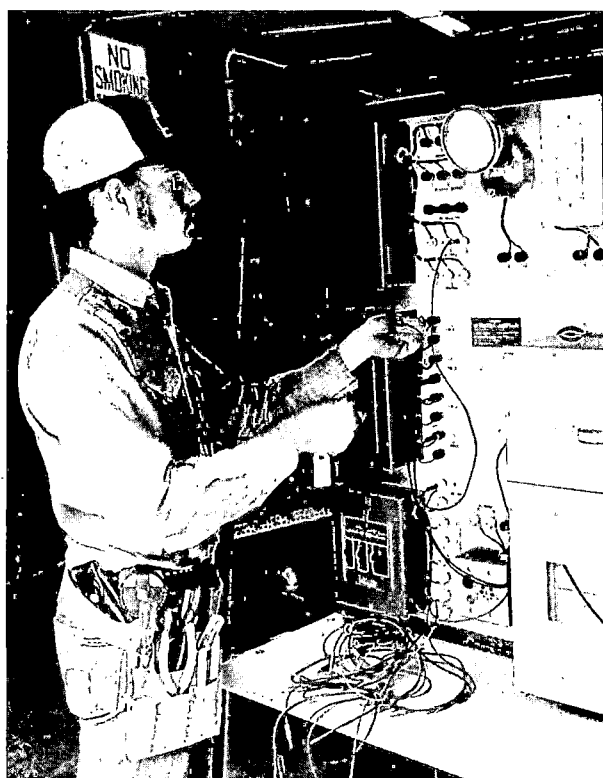
Industrial Electrician students must pay an equipment fee of \$80 prior to entering the first trimester and an additional \$50 before each additional trimester, totaling \$180. They must also provide their own shop clothing and industrial safety glasses or goggles.

## ENTRANCE REQUIREMENTS

1. Must make an acceptable score on a mathematics test.
2. Must be able to lift materials and equipment weighing up to 50 pounds.
3. Must have normal color vision.

## INDUSTRIAL ELECTRICIAN PROGRAM

<i>Trimester I</i>	<i>Hours/Week</i>
Electrical Trades Lab I .....	15
Electrical Trades Theory I .....	5
Electrical Math I .....	5
Blueprint Reading I .....	5



### *Trimester II*

Industrial Electrician Lab II .....	10
Industrial Electrician Theory II .....	5
Industrial Code Requirements .....	5
Supporting Courses .....	5-10

### *Trimester III*

Industrial Electrician Lab III .....	10
Industrial Electrician Theory III .....	5
Industrial Control Systems .....	5
Supporting Courses .....	5-10

### *Supporting Courses*

Algebra for Trades .....	3
Basic Physics and Mechanisms .....	5
Construction Estimating .....	3
Geometry for Trades .....	3
Industrial Electrician Blueprint Reading .....	2*
Industrial Electrician Math II .....	3*
Industrial Safety .....	3
Trigonometry for Trades .....	3

\*Required for advanced Industrial Electrician students.



## COURSE DESCRIPTIONS

### Electrical Trades Lab and Theory I (20 Hours/week)

This combined laboratory and related theory course provides instruction in safety; use of tools and equipment; electrical codes and utility regulations; basic electrical principles and measurements; wiring materials and devices; splices and connections; wiring systems and circuits; installing outlets, switch boxes, nonmetallic sheathed cable, overcurrent devices, low voltage equipment, branch circuits and service entrances.

### Electrical Math I (5 Hours/Week)

Covered are basic arithmetic and simple electrical formulas; various trade application problems involving calculations of materials; Ohm's law, series, parallel and combination circuits; mechanical work and power; and resistance of wire, size of wire and circuit loads.

### Blueprint Reading I (5 Hours/Week)

This course offers basic instruction in sketching, reading working drawings, blueprints and specifications for residential and light commercial work.

### Industrial Electrician Lab and Theory II (15 Hours/Week)

*(Prerequisites: Electrical Trades Lab and Theory I or equivalent)* The course includes principles of direct and alternating current, AC and DC generators and motors, small motor analysis and troubleshooting, electromagnetic and static controls, magnetic and static electric motor controls, and applications of electrical code.

### Industrial Code Requirements (5 Hours/Week)

Instruction supports the work accomplished in the Industrial Electrician lab through a study of the commercial and industrial sections of the electrical code.

### Industrial Electrician Lab and Theory III (15 Hours/Week)

*(Prerequisites: Industrial Electrician Lab and Theory II or equivalent)* Instructional materials covered in this course are similar to those covered in Industrial Electrician Lab II but in more depth. Major emphasis is placed on industrial control systems, automated motor controls, motor control equipment maintenance, motor acceleration and deceleration, motor speed controls, static control devices, transformer connections and operations, industrial distribution systems and low voltage circuits.

### Industrial Control Systems (5 Hours/Week)

*(Prerequisite: Industrial Code Math and Instrumentation and Blueprint Reading I or equivalent)* This course provides experience in the analysis, development and servicing of automatic control devices, starters, acceleration and braking, speed control devices, multi-station systems, and industrial heating and signalling devices.

### Algebra for Trades (3 Hours/Week)

*(Prerequisite: Industrial Electrician Math II or equivalent)* This course includes basic algebraic manipulation of signed numbers, order of operation, inverse operation, linear equations, straight-line graphs, monomials, polynomials, factoring, algebraic fractions, fractional equations, exponents and quadratic equations.

### Basic Physics and Mechanisms (5 Hours/Week)

*(Prerequisite: Industrial Electrician Math II)* Basic principles of mechanics, sound, light, utilization of basic gears, linkages and conversion mechanisms moves are covered. Emphasis is placed on modern industrial concepts and trends.

### Construction Estimating (3 Hours/Week)

This course is intended for those students in the building trades who are interested in estimating the amount of material, time and equipment required to complete a construction project.

### Geometry for Trades (3 Hours/Week)

*(Prerequisite: Industrial Electrician Math II or equivalent)* This course includes geometric construction and solutions, volume, capacity and simple formula manipulation.

### Industrial Electrician Blueprint Reading (2 Hours/Week)

*(Prerequisites: Electrical Trades Blueprint Reading I or equivalent)* This course provides instruction in unit substratum and high voltage metering equipment; feeder duct and distribution transformers; panelboards and sub-feeders; lighting circuits and systems; motors and controllers; precipitron units, synchronous condensers, three-phase trolley ducts; signal systems, ventilating and air-conditioning, telephone raceways and alternate methods of feeder layout.

### Industrial Electrician Math II (3 Hours/Week)

This course covers the mathematics encountered in the trade. Beginning algebra, trigonometric functions, power applications, wiring, magnetic circuits, generator and motor problems, and special applications on transformers are included.

### Industrial Safety (3 Hours/Week)

This course includes training in the Red Cross Multimedia System and cardiopulmonary resuscitation, for which Red Cross certification is issued upon successful completion. Occupational safety is stressed.

### Trigonometry for Trades (3 Hours/Week)

*(Prerequisite: Algebra for Trades or equivalent)* Trigonometric functions of acute angles, right triangles, and oblique triangles are covered in this course.

# Machine Trades

## 3 Trimesters

The Machine Trades Program qualifies students for entry into the machine trades field as machine tool operators.

Students learn the fundamental operations of all machines, and it is possible to specialize in drilling machine set-up and operations in the first trimester. During the second and third trimesters, the student may specialize on at least one type of machine in addition to continuing to develop skills on various types of machines. The specialization may include lathes, milling and grinding machines.

Machine Trades classes meet in a well-equipped lab where students are introduced to micrometer calipers, height transfer micrometers, surface plates, taper micrometers, gauge blocks, plug gauges, snap gauges, drill presses, band saws, engine lathes, milling machines, tool and cutter grinders, universal cylindrical grinders, numerical controlled equipment and many other types of equipment used throughout the metal working industry.

The year-long program offers up to 1,350 hours of instruction, of which 675 hours are laboratory and optional supervised work experiences based on industrial trends and 675 hours are supporting courses.

A student may leave the program when a training objective has been reached and receive a rating sheet detailing the skills mastered. To earn a diploma, a student must successfully complete a total of 1,200 hours of which 675 are laboratory work and 525 are related theory.

When the cooperating employer is paying the student for the optional supervised work experience offered during the third trimester, students receiving Veterans Administration or other support agency benefits will receive only partial benefits.

Machine Trades students must pay an equipment fee of \$90 before entering the first trimester and \$50 before each additional trimester, totaling \$190. Students must also provide their own industrial safety glasses or goggles.

## ENTRANCE REQUIREMENTS

1. Must make an acceptable score on a mathematics test.
2. Must be free of chronic respiratory diseases and allergies to oils, solvents and cutting fluids.
3. Must be able to stand on concrete floors for eight to ten hours per day.
4. Must have depth perception correctable in both eyes.
5. Must be able to lift materials and equipment weighing up to 50 pounds.

## MACHINE TRADES PROGRAM

<i>Trimester I</i>	<i>Hours/Week</i>
Machine Trades Lab I	15
Machine Trades Theory I	5
Machine Trades Math I	5
Blueprint Reading I	5

<i>Trimester II</i>	<i>Hours/Week</i>
Machine Trades Lab II	15
Machine Trades Theory II	5
Supporting Courses	5-10

<i>Trimester III</i>	<i>Hours/Week</i>
Machine Trades Lab III	15
Machine Trades Theory III	5
Supporting Courses	5-10

<i>Supporting Courses</i>	<i>Hours/Week</i>
Basic Metallurgy	2
Blueprint Reading II	5*
Blueprint Reading III	2
Industrial Safety	3
Machine Trades Math II	5*
Machine Trades Math III	3
Numerical Control Programming Applications	5
Production Planning	2
Tooling Applications	2
Trigonometry for Trades	3
True Position Dimensioning and Quality Control	3

\*Required of advanced Machine Trades students.

## COURSE DESCRIPTIONS

### Machine Trades Lab I (15 Hours/Week)

This laboratory practice course gives the beginning student instruction in the areas of shop safety, basic benchwork, precision measuring instruments, machine construction, and basic operations on the drill press, pedestal grinder, drill point grinder, milling machine, engine lathe and vertical band saw.

**Machine Trades Theory I (5 Hours/Week)**

This course supports the work accomplished in Machine Trades Lab I. It covers the fundamental principles of various machines, such as the lathe, drill press, band saw and bench grinders.

**Machine Trades Math I (5 Hours/Week)**

Feeds and speeds, percentages, surface and direct measurements, threads and tapers as applied to the machine trades field are included.

**Blueprint Reading I (5 Hours/Week)**

Basic instruction in reading and interpreting shop drawings is offered. Emphasis is on terminology, dimensions, and visualizing and sketching of orthographic and isometric shop drawings.

**Machine Trades Lab II (15 Hours/Week)**

*(Prerequisite: Machine Trades Lab and Theory I or equivalent)* Instructional emphasis is placed on the engine lathe, operations of taper turning, threading, introduction to four-jaw chuck work and basic introduction to tracer lathes; basic milling machine operations; surface grinding; tool and cutter grinding; introduction to cylindrical grinding; and manual numerically controlled (N/C) operation. Metric dimensional drawings and utilization of true position dimensioning are covered.

**Machine Trades Theory II (5 Hours/Week)**

*(Prerequisites: Machine Trades Theory I or equivalent)* This class involves daily discussions of problems arising from lab sessions. Emphasis is on the technical aspects of tooling as it applies to the various machine tools assigned in the lab with an introduction to the N/C milling machine.

**Machine Trades Lab III (15 Hours/Week)**

*(Prerequisites: Machine Trades Lab and Theory II or equivalent)* Major emphasis is on milling machine operations of hole production, indexing and rotary table work with N/C setup and basic tape operations. Basic off-set four-jaw chuck work, internal single point threads, basic turret lathe setup and operation, basic boring, introduction to cutting of acme threads, cylindrical grinding, and tool and cutter grinding are included.

**Machine Trades Theory III (5 Hours/Week)**

*(Prerequisites: Machine Trades Theory II or equivalent)* Problems arising from the lab sessions are reviewed daily. Instruction is given on the various measuring tools used in inspection, milling machine application with an introduction to word address N/C milling machines, lathe work and an introduction to basic elements of heat treatment.

**Basic Metallurgy (2 Hours/Week)**

Instruction is offered in methods and processes; structure and properties of metal; temperature changes in metal machining; and effects of alloying elements, weights and conversion factors.

**Blueprint Reading II (5 Hours/Week)**

*(Blueprint Reading I or equivalent)* This course teaches students to interpret complete shop drawings,

including size definition, true positioning symbols and coding practices as applied to the machine trades field.

**Blueprint Reading III (2 Hours/Week)**

*(Prerequisite: Blueprint Reading II or equivalent)* This is an advanced course in blueprint reading in which the student reads complex detail section and assembly drawings as related to the machine trades.

**Industrial Safety (3 Hours/Week)**

This course includes training in the Red Cross Multimedia System and cardiopulmonary resuscitation, for which Red Cross Certification is issued upon successful completion. Occupational safety is stressed.

**Machine Trades Math II (5 Hours/Week)**

*(Prerequisites: Machine Trades Math I or equivalent)* Instruction is provided in the use of rules and formulas, ratio and proportion, velocity or surface speed, geometric principles and applications, square root and basic metric applications as applied to machine trades.

**Machine Trades Math III (3 Hours/Week)**

*(Prerequisite: Machine Trades Math II or equivalent)* This course provides instruction in formula manipulation in dealing with problems arising from shop-related right-triangle problems, as well as mathematical operations from the Morse Practical Guide and Machinery Handbook.

**Numerical Control Programming Applications (5 Hours/Week)**

*(Prerequisites: Machine Trades Math I and Blueprint Reading I or equivalent)* The history of N/C, the TAB sequential, fixed block and word address formats, as well as the programming and tape preparation necessary for numerical control machining, are included in this course.

**Production Planning (2 Hours/Week)**

*(Prerequisites: Machine Trades Lab and Theory II)* This course covers material allocation, method planning, job routing, time and cost estimating, and production planning terms.

**Tooling Applications (2 Hours/Week)**

This course covers care and application of tooling with emphasis on applications to commonly machined materials with high speed steels, carbides, coated carbides and oxides.

**Trigonometry for Trades (3 Hours/Week)**

*(Prerequisite: Math III or equivalent)* Trigonometric functions of acute angles, right triangles and oblique triangles are covered in this course.

**True Position Dimensioning and Quality Control (3 Hours/Week)**

This course offers instruction in the interpretation and application of the true position dimensioning system based on federal specifications. It also deals with the maintenance of high quality production inspection in the machine trades field. Subjects covered include comparative, gauge and optical measurement as they relate to the inspection of parts machined to true position dimensions.

# Masonry

## 1 Trimester

The Masonry Program teaches the skills and practices needed to enter the construction field as a mason. In the one-trimester program, students learn the fundamentals of masonry and masonry machines. Advanced masonry skills, such as chimneys, fireplaces, arches, floors and estimating are available.

The indoor lab includes power finishers, mortar mixers, concrete mixers, floats, tampers and other types of equipment used in the industry.

The four-month program provides 450 hours of instruction of which 300 hours are laboratory experiences and 150 hours are related theory.

Additional supporting courses may be taken.

A student may leave the program when a skill level is reached which enables him or her to get a job. A rating sheet is provided at that time detailing the skills mastered. A certificate is awarded to those students who complete all of the required instructional units in the program.

Masonry students must pay an equipment fee of \$80 before entering the program.

### ENTRANCE REQUIREMENTS

1. Must make an acceptable score on a mathematics test.
2. Must be free of chronic lime or cement product allergies.
3. Must be able to lift materials and equipment weighing up to 50 pounds.

### MASONRY PROGRAM

<i>Trimester I</i>	<i>Hours/Week</i>
Masonry Lab I .....	20
Masonry Theory I .....	5
Masonry Math I .....	3
Blueprint Reading I .....	2
<i>Supporting Courses</i>	
Blueprint Reading II .....	2
Concrete Technology .....	2
Construction Estimating .....	3
Geometry for Trades .....	3
Industrial Safety .....	3

### COURSE DESCRIPTIONS

#### Masonry Lab and Theory I (25 Hours/Week)

Instruction includes masonry trades safety, tools and equipment, and scaffold building. Various masonry materials, simple structures, and basic builders level and transit set-ups are covered.

#### Masonry Math I (3 Hours/Week)

This course covers basic arithmetic including whole numbers, common fractions, decimal fractions, surface



and direct measurement, percent, powers and roots, and angular and area measurement as applied to masonry.

#### Blueprint Reading I (5 Hours/Week)

Basic instruction is offered in sketching and reading working drawings and blueprints. Specifications for masonry products are included.

#### Blueprint Reading II (5 Hours/Week)

*(Prerequisite: Blueprint Reading I or equivalent)* This course includes a study of development and variations in design, construction practices and materials, specifications, masonry materials and effects of material variations on blueprint reading.

#### Concrete Technology (2 Hours/Week)

Concrete Technology introduces the students to the history, development and present use of concrete in the construction industry. The chemistry of cements is covered in depth. Types of aggregates used in concrete, design and control of concrete, control of concrete mixes, precast concrete and various forming systems are covered.

#### Construction Estimating (3 Hours/Week)

This course is for those students in the building trades who are interested in estimating the material, time and equipment required to complete a construction project.

#### Geometry for Trades (3 Hours/Week)

*(Prerequisite: Masonry Math I or equivalent)* This course includes geometric construction and solutions, volume, capacity and simple formula manipulation.

#### Industrial Safety (3 Hours/Week)

This course includes training in the Red Cross Multimedia System and cardiopulmonary resuscitation, for which Red Cross Certification is issued upon successful completion. Occupational safety is stressed.

# Parts Specialist

## 2 Trimesters

The Parts Specialist Program prepares students for entry-level employment in the four phases of parts sales: shipping and receiving, stocking, inventory control and counter sales.

Also included are some secondary areas such as outside parts sales, inventory supervision, inventory purchasing and control, management of satellite store parts sales and office manager.

In the first trimester, students learn catalog use through practical experience, parts sales organization, shipping and receiving, stocking procedure, inventory control and counter sales.

The Parts Specialist lab is set up like a live store and makes parts distribution for student use in related mechanical programs at T-VI.

The lab includes catalogs, microfiche, calculators, cash registers, receipt machines and many other types of equipment used in the industry.

The second trimester is on an open-exit basis, meaning that students may leave the program when a training objective is reached. During this trimester, the major parts supply areas of auto collision, and automotive and diesel mechanics are stressed.

The eight-month program provides up to 900 hours of instruction, of which 600 hours are laboratory and 300 hours are supporting courses.

A student may leave the program when a skill level is reached which enables him or her to get a job. A rating sheet is provided at that time detailing the skills mastered. To earn a diploma, a student must successfully complete a total of 825 hours of which 600 are laboratory work and 225 are related theory.

Parts Specialist students must pay an equipment fee of \$50 before entering the first trimester.

## ENTRANCE REQUIREMENTS

1. Must make an acceptable score on a mathematics test.
2. Must be free of chronic respiratory diseases and allergies to automotive fuels and solvents.
3. Must be able to lift materials and equipment weighing up to 50 pounds.
4. Must have correctable vision.
5. Must be able to stand on concrete floors for a prolonged period of time.



## PARTS SPECIALIST PROGRAM

<i>Trimester I</i>	<i>Hours/Week</i>
Parts Specialist Lab I .....	20
Parts Specialist Theory I .....	5
Parts Sales Math .....	3
Precision Measurement .....	2
 <i>Trimester II (Open-exit)</i>	
Parts Specialist Lab II .....	20
Parts Specialist Theory II .....	5
Supporting Courses .....	0-5
 <i>Supporting Courses</i>	
Basic Accounting Principles .....	5
Basic Tool Applications .....	3
Industrial Safety .....	3
Principles of Data Processing .....	5

# Plumbing

## COURSE DESCRIPTIONS

## 2 Trimesters

### Parts Specialist Lab and Theory I (25 Hours/Week)

This combined theory and laboratory practice class provides instruction in automotive collision, automotive and diesel parts nomenclature, parts sales, shipping and receiving procedures, inventory control, counter sales and safety.

### Parts Sales Math (3 Hours/Week)

Basic arithmetic; percentages; ratio and proportion; sales ticket, work order, special order and estimate parts writing; and metric systems and volumes are covered.

### Precision Measurement (2 Hours/Week)

Precision measuring tools used in the industry will be emphasized. Practical training applications on the English and metric micrometer caliper, vernier caliper, depth micrometer, telescoping gauges and dial indicators will be the main part of the course.

### Parts Specialist Lab and Theory II (25 Hours/Week)

(Prerequisite: *Parts Specialist Lab and Theory I or equivalent*) Materials covered in this course are a continuation of Trimester I Lab/Theory with emphasis on actual working business problems. Employer-employee rules and guidelines, counter sales problems, dealership catalogs, and dealership operation and parts house operation will be included.

### Basic Accounting Principles (5 Hours/Week)

Instruction is provided in accounting fundamentals. Included are the accounting statements and the principles of journalizing and posting.

### Basic Tool Applications (3 Hours/Week)

Shop safety, basic benchwork, hand tools, basic operations on the drill press, pedestal grinder, and brake lathe operations are taught in this combination theory, demonstration and training course.

### Industrial Safety (3 Hours/Week)

This course includes training in the Red Cross Multimedia System and cardiopulmonary resuscitation for which Red Cross certification is issued upon successful completion. Occupational safety is stressed.

### Principles of Data Processing (5 Hours/Week)

This course covers manual and automated information systems, historical development, definitions, planning and recording data in punched cards and other input media, unit record equipment and digital and analog computers.

The Plumbing Program provides the technical knowledge and occupational skills necessary to enter the plumbing industry.

During the first trimester, students receive instruction in the fundamentals of layout, assembly and installation; alteration and repair of piping systems; manipulative skills; and tools of the trade. Emphasis in the second trimester is on layout rigging; planning and coordinating the job; application of codes; and installation of water, soil and vent lines.

The program is housed in a lab specifically designed for plumbing work. It includes pipe threading machines, soldering machines, propane torches, power sewer cleaners, welding machines and many other types of equipment used in industry. Students also work on plumbing projects in an outdoor construction area.

The eight-month program consists of 900 hours of instruction, of which 450 hours are laboratory experiences and 450 hours are supporting courses.

A student may leave the program when a training objective has been reached and receive a rating sheet detailing the skills mastered. To earn a diploma, a student must successfully complete a total of 825 hours of which 450 are laboratory work and 375 are related theory.

Plumbing students must pay an equipment fee of \$80 before entering the first trimester and an additional \$50 before the second trimester, totaling \$130.

## ENTRANCE REQUIREMENTS

1. Must make an acceptable score on a mathematics test.
2. Must be free of chronic respiratory disease and allergies to plumbing fluxes, oils, glues and plastic compounds.
3. Must be able to lift materials and equipment weighing up to 50 pounds.

## PLUMBING PROGRAM

<i>Trimester I</i>	<i>Hours/Week</i>
Plumbing Lab I . . . . .	15
Plumbing Theory I . . . . .	5
Plumbing Math I . . . . .	5
Blueprint Reading I . . . . .	5

<i>Trimester II</i>	<i>Hours/Week</i>
Plumbing Lab II . . . . .	15
Plumbing Theory II . . . . .	5
Supporting Courses . . . . .	5-10

### *Supporting Courses*

Blueprint Reading II . . . . .	2
Construction Estimating . . . . .	3
Control Circuitry . . . . .	3
Geometry for Trades . . . . .	3
Industrial Safety . . . . .	3
Oxyacetylene Welding . . . . .	3
Solar Applications . . . . .	3

## COURSE DESCRIPTIONS

### **Plumbing Lab/Theory I (20 Hours/Week)**

This class provides instruction in the safe and proper use of tools and equipment; elements of plumbing; identification of plumbing fittings and pipe; basic hydraulics and pneumatics; and layout, assembly, installation, alteration and repair of pipe systems.



### **Plumbing Math I (5 Hours/Week)**

This course covers basic arithmetic, reading the rule, whole numbers, common and decimal fractions, cubic and weight measures, use of rules and formulas, ratio and proportion, area calculations, volumes, pressure and capacities, hydraulics and pipe length calculations, heat loss problems, and surface and direct measurements.

### **Blueprint Reading I (5 Hours/Week)**

This course offers basic instruction in sketching, reading working drawings, blueprints, and specifications for residential and light commercial work.

### **Plumbing Lab/Theory II (20 Hours/Week)**

*(Prerequisites: Trimester I Lab and Theory or equivalent)* Emphasized in this course are design; layout and installation of water, soil and vent lines; related fixtures and fittings; inspecting and testing systems; soldering and brazing; rigging; and maintenance and repair of plumbing systems.

### **Blueprint Reading II (2 Hours/Week)**

*(Prerequisite: Blueprint Reading I or equivalent)* Course content includes a detailed study of piping drawings, isometric pipe layouts, interpreting residential blueprints, application of plumbing codes, knowledge of terms, and planning and coordinating the job.

### **Construction Estimating (3 Hours/Week)**

This course is for those students in the building trades who are interested in estimating the amount of material, time and equipment required to complete a construction project.

### **Control Circuitry (3 Hours/Week)**

This course reinforces the background knowledge required in diagnosis and service of environmental equipment with emphasis on the function and understanding of electrical control circuitry. Included are transformers, motors, relays, contactors, starters and circuit protection.

### **Geometry for Trades (3 Hours/Week)**

*(Prerequisite: Plumbing Math I or equivalent)* This course includes geometric construction and solutions, volume, capacity and simple formula manipulation.

### **Industrial Safety (3 Hours/Week)**

This course includes training in the Red Cross Multimedia Systems and cardiopulmonary resuscitation, for which Red Cross Certification is issued upon successful completion. Occupational safety is stressed.

### **Oxyacetylene Welding (3 Hours/Week)**

This laboratory practice class includes safety practices, general tools and equipment, sources of heat, operational procedures, metals and their properties, and applications of oxyacetylene welding.

### **Solar Applications (3 Hours/Week)**

This course offers instruction and application in heat collectors, types of storage and use with conventional heating systems.

# Sheet Metal

## 2 Trimesters, Open-entry/Open-exit

The Sheet Metal Program equips students with the technical knowledge and skills needed for satisfactory performance in layout, fabrication, installation and maintenance of sheet metal work for heating, ventilating and solar applications.

During the first part of the program, students learn sheet metal processes performed with hand, bench, cutting and layout tools. At the advanced level, emphasis is placed on sheet metal machines and accessories, pattern development and sheet metal applications.

New students may begin the program every two weeks and a student may leave the program when a skill level is reached which enables him or her to get a job. However, only persons who enter the program at the beginning of a trimester will be eligible to receive Veterans Administration benefits. The entire program is two trimesters in length.

The program provides up to 915 hours of instruction, of which 600 are lab work and 315 are supporting courses. Instruction is based on projects or units which require certain skills.

To earn a diploma, a student must successfully complete a total of 825 hours of which 600 are laboratory work and 225 are related theory, or all required instructional units.

The program meets in a lab specifically designed for sheet metal fabrication where students are introduced to slip rolls, the rotex punch, brakes, lockformers and many other types of equipment used in the industry.

Sheet Metal students must pay an equipment fee of \$80 before entering the first trimester and an additional \$50 before entering the second trimester, totaling \$130.

## ENTRANCE REQUIREMENTS

1. Must make an acceptable score on a mathematics test.
2. Must be free of chronic respiratory diseases and allergies to sheet metal fluxes and metals.
3. Must be able to lift materials and equipment weighing up to 50 pounds.

## COURSE DESCRIPTIONS

### Sheet Metal Lab/Theory I (25 Hours/Week)

Instruction is provided in sheet metal processes performed with hand, bench, cutting and layout tools; safety; care of tools and equipment; materials and supplies; straight, parallel and radial line pattern development; soldering techniques; and the fabrication, erection and maintenance of residential ventilating, air-conditioning and heating sheet metal systems.

### Sheet Metal Math I (3 Hours/Week)

Covered are basic arithmetic including whole numbers, common fractions, decimal fractions, surface and direct measurement, percent, powers and roots, and angular and area measurement as applied to the sheet metal trade.

### Blueprint Reading I (2 Hours/Week)

Basic instruction in working drawings and blueprints is offered in this course.

### Sheet Metal Lab/Theory II (25 Hours/Week)

*(Prerequisite: Sheet Metal Lab and Theory I or equivalent)* This course provides advanced training and emphasizes sheet metal machines and accessories, radial line and transition pattern development.

### Construction Estimating (3 Hours/Week)

This course is for those students in the building trades who are interested in estimating the amount of material, time and equipment required to complete a construction project.

### Geometry for Trades (3 Hours/Week)

*(Prerequisite: Math I or equivalent)* This course includes geometric construction and solutions, volume, capacity and simple formula manipulation.

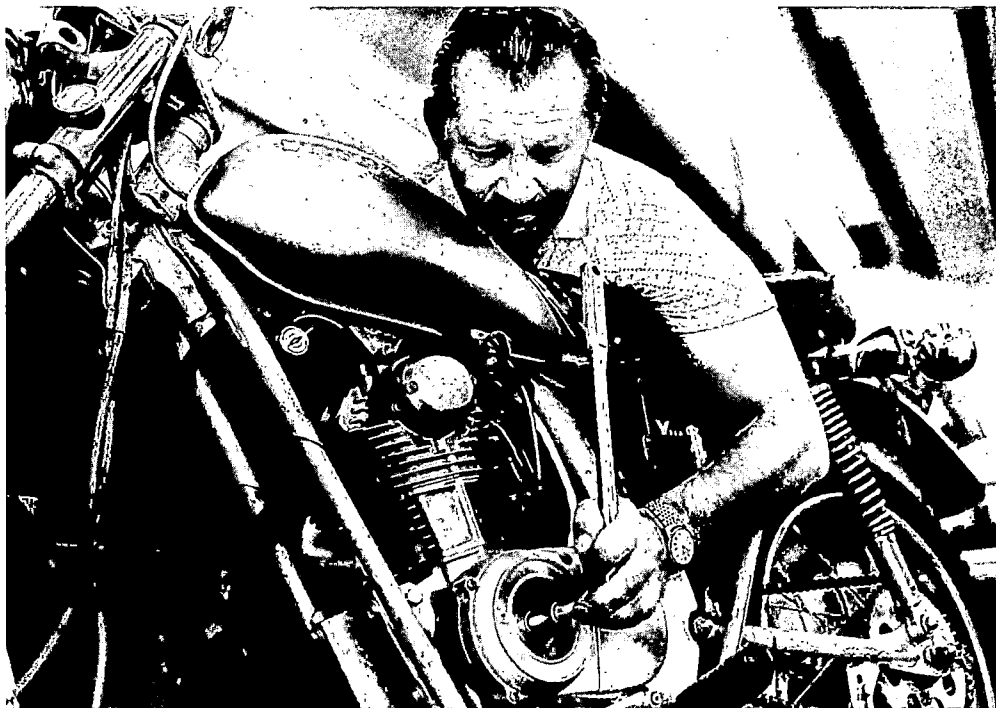
### Industrial Safety (3 Hours/Week)

This course includes training in the Red Cross Multimedia System and cardiopulmonary resuscitation, for which Red Cross Certification is issued upon successful completion. Occupational safety is stressed.

## SHEET METAL PROGRAM

<i>Trimester I</i>	<i>Hours/Week</i>
Sheet Metal Lab I . . . . .	20
Sheet Metal Theory I . . . . .	5
Sheet Metal Math I . . . . .	3
Blueprint Reading I . . . . .	2
<i>Trimester II</i>	
Sheet Metal Lab II . . . . .	20
Sheet Metal Theory II . . . . .	5
Supporting Courses . . . . .	0-6
<i>Supporting Courses</i>	
Construction Estimating . . . . .	3
Geometry for Trades . . . . .	3
Industrial Safety . . . . .	3





## Small Engine Mechanics

### 2 Trimesters

The Small Engine Mechanics Program provides job entry technical knowledge and skills through an instructional program based on the rapidly expanding small engine repair field.

In the first trimester, students learn the use of hand tools, two- and four-cycle engines, ignition and starting systems, and engine tune-up procedures. Included in the second trimester are small engine troubleshooting; two- and four-cycle engine overhaul; use of specifications, manuals and microfiche; and reduction, lower units and clutches on construction support equipment and recreational vehicles.

The Small Engine Mechanics lab introduces students to chain saws, 2- and 4-cycle mower engines, multiple cylinder air-cooled engines,

outboard motors, valve grinding machines, hones, test instruments and many other types of equipment used in industry.

The eight-month program provides up to 900 hours of instruction, of which 600 hours are laboratory and 300 hours are supporting courses.

A student may leave the program when a training objective is reached and receive a rating sheet detailing the skills mastered. To earn a diploma, a student must successfully complete a total of 825 hours of which 600 are laboratory work and 225 are related theory.

Small Engine Mechanics students must pay an equipment fee of \$80 before entering the first trimester and an additional \$50 before entering the second trimester, totaling \$130.



**COURSE DESCRIPTIONS**

**Small Engine Mechanics Lab and Theory I  
(25 Hours/Week)**

This course offers instruction in occupational safety; hand tools and shop equipment; fastening devices, threads and lubrication; basic small engine troubleshooting; disassembly, inspection, cleaning, reconditioning, reassembly and checkout; introduction to ignition and starter systems, fuel systems and tune-up techniques; and proper use of manufacturer's specifications, manuals, catalogs and price lists. The course also teaches the student to interpret small engine blueprints and schematics.

**Small Engine Mechanics Math I (3 Hours/Week)**

This trade related course reviews basic mathematics, English and metric measurement systems, basic calculations, machinist's scales and the various thread systems used in the industry.

**Precision Measurements (2 Hours/Week)**

Precision measuring tools used in the industry are emphasized. Practical training applications on the English and metric micrometer caliper, vernier caliper, depth micrometer, telescoping gauges and dial indicators are the main part of this course.

**Small Engine Mechanics Lab and Theory II  
(25 Hours/Week)**

*(Prerequisites: Small Engine Mechanics Lab and Theory I or equivalent)* Detailed instruction in small engine troubleshooting; major engine overhaul; governors; fuel and air systems; engine cooling; advanced tune-up techniques; reduction and lower units; gear, belt and pulley applications; and an introduction to various small engine recreational vehicles are provided. The course also includes instruction in repair orders, invoices, warranty descriptions and customer relations.

**Diesel Support Engines (5 Hours/Week)**

*(Prerequisite: Small Engine Mechanics Lab and Theory I or equivalent)* This course offers an introduction to the air-cooled diesel engine with emphasis on the construction modifications and the fuel delivery system.

**Electrical Accessories (5 Hours/Week)**

*(Prerequisite: Small Engine Mechanics Math I or equivalent)* This course includes instruction in charging systems, ignition systems, safety inter-lock systems, generators, alternators, and electronic system troubleshooting techniques. Emphasis is on schematic reading.

**Geometry for Trades (3 Hours/Week)**

*(Prerequisite: Small Engine Mechanics Math I or equivalent)* This course includes geometric construction, geometric solutions, volume, capacity and simple formula manipulation.

**Industrial Safety (3 Hours/Week)**

This course includes training in the Red Cross Multimedia System and cardiopulmonary resuscitation, for which Red Cross Certification is issued upon successful completion. Occupational safety is stressed.

**ENTRANCE REQUIREMENTS**

1. Must make an acceptable score on a mathematics test.
2. Must be free of chronic respiratory diseases and allergies to fuels and solvents.
3. Must be able to lift materials and equipment weighing up to 50 pounds.

**SMALL ENGINE MECHANICS PROGRAM**

<i>Trimester I</i>	<i>Hours/Week</i>
Small Engine Mechanics Lab I .....	20
Small Engine Mechanics Theory I .....	5
Small Engine Mechanics Math I .....	3
Precision Measurements .....	2
<i>Trimester II</i>	
Small Engine Mechanics Lab II .....	20
Small Engine Mechanics Theory II .....	5
Supporting Courses .....	0-5
<i>Supporting Courses</i>	
Diesel Support Engines .....	5
Electrical Accessories .....	5
Geometry for Trades .....	3
Industrial Safety .....	3

# Welding

## 3 Trimesters

The Welding Program qualifies students for entry-level employment in the metals processing industry.

During the first trimester, students study and practice acetylene and shielded metal arc welding. In the second trimester, shielded metal arc is continued and instruction is given in gas tungsten arc and gas metal arc welding. During the third trimester, emphasis is on welding qualifications, fabrication, pipe welding and materials testing.

Specific welding certification is the goal of each trimester.

Welding is housed in two working labs specifically designed for welding. Students are introduced to rectifier and resistance machines, induction power supplies, power shears, semi-radiograph, hardness testers, dye penetrant and tensile testing.

The one-year program totals 1,350 hours of instruction, of which 750 hours are laboratory practice and 600 hours are supporting courses.

A student may leave the program when a training objective is reached and receive a rating sheet detailing the skills mastered. A diploma is awarded to those students who complete 1,320 hours of instruction of which 750 are laboratory work and 570 are related theory.

All laboratory courses require operator qualification examinations. Supporting courses require examinations in each area supporting laboratory work.

Welding students must pay an equipment fee of \$80 before entering the first trimester and an additional \$50 before entering the second trimester, totaling \$130.

### ENTRANCE REQUIREMENTS

1. Must make an acceptable score on a mathematics test.
2. Must be able to lift materials and equipment weighing up to 50 pounds.
3. Must be free of chronic respiratory diseases.



### WELDING PROGRAM

<i>Trimester I</i>	<i>Hours/Week</i>
Welding Lab I .....	15
Welding Metallurgy I .....	5
Welding Math I .....	5
Blueprint Reading I .....	5
<i>Trimester II</i>	
Welding Lab II .....	15
Welding Metallurgy II .....	5
Welding Math II .....	5
Blueprint Reading II .....	5
<i>Trimester III</i>	
Welding Lab III .....	20
Welding Metallurgy III .....	5
Supporting Courses .....	3-5
<i>Supporting Courses</i>	
Algebra for Trades .....	3
Cost Analysis .....	3
Destructive and Non-Destructive Testing .....	4
Fundamentals of Electricity .....	3
Industrial Safety .....	3
Inspection and Quality Control .....	5
Strength of Welding Materials .....	3
Trigonometry for Trades .....	3

## COURSE DESCRIPTIONS

### Welding Lab I (15 Hours/Week)

This laboratory practice class teaches welding safety, general tools and equipment, common gases and their properties, welding materials, welding joints, oxyacetylene welding and brazing, metal cutting with gas, and shielded metal-arc welding procedures and processes.

### Welding Metallurgy I (5 Hours/Week)

Instruction is offered in manufacturing processes; welding methods and processes; structure and properties of metal; temperature changes in welding; effects of alloying elements; variations of fluxes; and slags and gases for shielding.

### Algebra for Trades (3 Hours/Week)

(*Math II or equivalent*) This course includes basic algebraic manipulation of signed numbers, orders of operation, inverse operation, linear equations, straight-line graphs, monomials, polynomials, factoring, algebraic functions, fractional equations, exponents and quadratic equations.

### Cost Analysis (3 Hours/Week)

This course allows business-minded students to estimate various welding jobs. Accuracy and complete cost estimating are stressed.

### Destructive and Nondestructive Testing (4 Hours/Week)

(*Prerequisite: Welding Metallurgy II or equivalent*) This laboratory course emphasizes work in the areas of specimen preparation, reporting and evaluating various types of weld qualifications.

### Fundamentals of Electricity (3 Hours/Week)

This practical course provides instruction in the basic principles of electricity; terms; electrical components and symbols; schematic reading; conductors, insulators and resistors; Ohm's Law and Watt's Law; series, parallel and series-parallel circuits; alternating and direct current; transformers; and common practices in electrical circuits.

### Industrial Safety (3 Hours/Week)

This course includes training in the Red Cross Multimedia System and cardiopulmonary resuscitation, for which Red Cross certification is issued upon successful completion. Occupational safety is stressed.

### Inspection and Quality Control (5 Hours/Week)

(*Prerequisite: Welding Metallurgy II or equivalent*) Instruction is offered on the specifics of welding inspection. Sample forms and reports are written and quality control procedures are covered.

### Strength of Welding Materials (3 Hours/Week)

(*Prerequisite: Successful completion of Welding Metallurgy II and Welding Math II*) This course covers the mathematics of stresses, forces, and movements as related to structural members. The course also includes the basic concepts for further study in the design and analysis of structures, with emphasis on stress factors relating to residual and stress raisers.

### Trigonometry for Trades (3 Hours/Week)

(*Prerequisite: Algebra for Trades*) Trigonometric functions of acute angles, right triangles and oblique triangles are covered.

### Welding Math I (5 Hours/Week)

This course covers basic arithmetic. Surface and direct measurements, graphs and charts and payroll calculations are studied.

### Blueprint Reading I (5 Hours/Week)

Basic drawing interpretation, welding symbols, terms, and detailed fittings as applied to the welding area are covered in this course.

### Welding Lab II (15 Hours/Week)

(*Prerequisites: Welding I Lab and Welding Metallurgy I or equivalent*) This laboratory practice course provides advanced instruction in shielded arc welding and beginning instruction in inert gases and gas-arc welding through the use of various gas-arc welding power sources, torches, electrodes and wire-feed systems. Occupational safety standards and practices are emphasized throughout.

### Welding Metallurgy II (5 Hours/Week)

(*Prerequisite: Welding Metallurgy I or equivalent*) Instruction is offered in filler metal for joining iron and steel, shrinkage and distortion in weldments, preheating and postheating, difficulties and defects in welds, welding carbon steel, welding alloy steels, welding tests, conversion factors and symbols, weights and properties.

### Welding Math II (5 Hours/Week)

(*Prerequisite: Welding Math I or equivalent*) The use of rules, formulas, ratio, proportion, volume and right angle calculations as applied to the welding industry make up the course content.

### Blueprint Reading II (5 Hours/Week)

(*Prerequisite: Blueprint Reading I or equivalent*) This theory course allows students to develop specifications for various types of pipe and fabrication welding, materials estimating, pipe layout and development, pipe and structural print reading, performance of pipe certification tests for the basic intersections, transferring of measurements from working drawings and blueprints, design considerations, layout and welding as related to welding fabrication.

### Welding Lab III (20 Hours/Week)

(*Prerequisite: Welding II Lab and Welding Metallurgy II or equivalent*) Emphasis is on working speed and proficiency in the welding lab through continued practice, shop fabrication and selected field work assignments. Instruction is also offered in basic pipe welding and layout, materials testing and industrial safety. Welding and testing of pipe intersections designed in Blueprint Reading II, as well as pipe qualification tests, are also offered to the student.

### Welding Metallurgy III (5 Hours/Week)

This course deals with technical reports and welding problems arising from the lab sessions including daily discussion and review. Instruction is given on the various welding processes and layout used in fabrication.

# Family Community Center

The Family Community Center at 901 Buena Vista SE is a pilot project for the state administered by T-VI with funds from the NM State Department of Education Vocational Division. The purpose of the center is to strengthen and educate families better to meet the challenges of today's changing society and changing family structures.

Generally, the programs sponsored by the center are for everyone in the community and are held when a need is determined to exist in a specific area. Among the programs the center is sponsoring are:

- Home Day Care Training—teaching skills for day care providers,
- Parentcraft Program—a two-year program providing support and education services to first-time parents in a small group situation,
- Independent Living Skills—teaching basic living skills to retarded/handicapped adults to enable them to become more independent,
- Consumer Health Program for Women—providing information for women about what they can and should expect in personal health care,
- CARINO—a telephone information service for persons needing information about day care available locally and providing an information exchange center for day care providers (The CARINO telephone number is 247-9837.).

## ADMINISTRATION

Joseph P. Robitaille  
*President*

Louis E. Saavedra  
*Vice President*

Marvin F. Burianek  
*Director, Support Services Division*

Harold W. Jackson  
*Director, Evening Division*  
*Director, Montoya Campus*

Max V. Leavitt  
*Director, Albuquerque Skill Center*

Richard S. Rounds  
*Director, Day Division*

David E. Smoker  
*Director, Student Services Division*

# DAY DIVISION APPLICATION FORM

ALBUQUERQUE TECHNICAL-VOCATIONAL INSTITUTE  
525 Buena Vista S.E.  
Albuquerque, New Mexico 87106  
(505) 843-7250

I Would Like to Attend: (Please Check One)	
A. <input type="checkbox"/>	Main Campus (Coal and Buena Vista SE)
B. <input type="checkbox"/>	Satellite Campus (Morris and Montgomery NE)

## BIOGRAPHICAL INFORMATION

1. NAME \_\_\_\_\_  
*Last* \_\_\_\_\_ *First (Not Nickname)* \_\_\_\_\_ *Middle* \_\_\_\_\_
2. Former name(s) which may appear on education or employment records: \_\_\_\_\_
3. (a) Social Security No. \_\_\_\_\_ (b) Male \_\_\_\_\_ Female \_\_\_\_\_ (c) Telephone \_\_\_\_\_
4. (a) Current Address \_\_\_\_\_  
*Street & Number* \_\_\_\_\_ *City* \_\_\_\_\_ *State* \_\_\_\_\_ *Zip Code* \_\_\_\_\_
- (b) PERMANENT Address \_\_\_\_\_  
*Street & Number* \_\_\_\_\_ *City* \_\_\_\_\_ *State* \_\_\_\_\_ *Zip Code* \_\_\_\_\_
- (c) Have you lived in New Mexico the last twelve months? Yes \_\_\_\_\_ No \_\_\_\_\_  
(If answer is no please list number of months) \_\_\_\_\_
5. (a) Date of Birth \_\_\_\_\_ (b) Age \_\_\_\_\_
- (c) Place of Birth \_\_\_\_\_  
*City* \_\_\_\_\_ *State* \_\_\_\_\_

## PROGRAM INFORMATION (see Day Division Bulletin)

List below the Vocational Program(s) for which you are now applying:

6. (a) \_\_\_\_\_ (b) \_\_\_\_\_ (if any)
7. Have you ever *applied* for or *attended* DAYTIME classes at T-VI before? Yes \_\_\_\_\_ No \_\_\_\_\_
8. I want to begin attending classes in (circle one) January May September Other \_\_\_\_\_

## EDUCATIONAL INFORMATION

9. (a) High School Attended \_\_\_\_\_
- (b) City \_\_\_\_\_ (c) State \_\_\_\_\_
- (d) Highest Grade *Completed* (circle one) 1 2 3 4 5 6 7 8 9 10 11 12 College 1 2 3 4
- (e) High School Graduate? Yes \_\_\_\_\_ No \_\_\_\_\_ (f) Date of Graduation or Withdrawal \_\_\_\_\_  
*Month* \_\_\_\_\_ *Year* \_\_\_\_\_
10. GED GRADUATE? Yes \_\_\_\_\_ No \_\_\_\_\_
11. OTHER VOCATIONAL SCHOOLS OR COLLEGES ATTENDED (Including Military Schools):  
NAME \_\_\_\_\_ DATES OF ATTENDANCE \_\_\_\_\_ COURSE OF STUDY \_\_\_\_\_
- (a) \_\_\_\_\_

SPONSORING AGENCY AND FINANCIAL AID (Circle as applicable)

13. (a) V.A. (b) Office of C.E.T.A. (c) Social Security (d) B.I.A. (e) N.M. Student Loan  
(f) Basic Educational Opportunity Grant (g) College Work-Study  
(h) D.V.R. \_\_\_\_\_ (Counselor's Name) (i) Other \_\_\_\_\_ (j) NONE

14. FAMILY INFORMATION

THIS SQUARE IS TO BE COMPLETED ONLY BY APPLICANTS LIVING WITH AND/OR DEPENDENT ON THEIR PARENTS.

Parents' Name \_\_\_\_\_ Telephone Number \_\_\_\_\_  
Parents' Address \_\_\_\_\_

HEALTH INFORMATION

This information is needed to help avoid placing you in classes where health conditions could cause problems for you and/or others, and to have health information about you on file in case of emergency.

15. Person to be contacted in case of emergency \_\_\_\_\_ (a) Home Telephone: \_\_\_\_\_  
\_\_\_\_\_ (b) Work Telephone: \_\_\_\_\_  
16. (a) Family Doctor \_\_\_\_\_ Telephone \_\_\_\_\_ City \_\_\_\_\_  
(b) Hospital Preferred \_\_\_\_\_

17. VISION Normal \_\_\_\_\_ Fully Corrected \_\_\_\_\_ Some Loss \_\_\_\_\_ Substantial Loss \_\_\_\_\_  
(a) Color Blind? Yes \_\_\_\_\_ No \_\_\_\_\_  
18. HEARING \_\_\_\_\_  
19. WALKING \_\_\_\_\_  
20. OTHER (explain) \_\_\_\_\_

21. CHRONIC MEDICAL CONDITIONS: (Check those which apply to you)

- \_\_\_\_ Heart Disease \_\_\_\_\_ Hepatitis \_\_\_\_\_ Emotional Problems  
\_\_\_\_ Severe Allergy \_\_\_\_\_ Rupture, Hernia \_\_\_\_\_ Joint Disease/Injury  
\_\_\_\_ High Blood Pressure \_\_\_\_\_ Diabetes \_\_\_\_\_  
\_\_\_\_ Back Problems \_\_\_\_\_ Tuberculosis \_\_\_\_\_ NONE  
\_\_\_\_ Epilepsy \_\_\_\_\_ Migraine Headaches \_\_\_\_\_  
\_\_\_\_ Spinal Injury \_\_\_\_\_ Kidney Disease \_\_\_\_\_  
OTHER \_\_\_\_\_

22. Please list prescribed medications: \_\_\_\_\_  
23. Can you lift 50 pounds? \_\_\_\_\_

STATEMENT OF APPLICANT

I certify that the information furnished on this application is correct to the best of my knowledge.

I agree that, if I am admitted to the Technical-Vocational Institute, I will become familiar with and will observe the school's policies

other educational institutions and public agencies.

Date of Application \_\_\_\_\_

Applicant's Signature \_\_\_\_\_

Erin



12. JOB HISTORY (Last two jobs only)

(a) \_\_\_\_\_ City \_\_\_\_\_ Dates of Employment \_\_\_\_\_ Type of Work \_\_\_\_\_  
Employer \_\_\_\_\_ City \_\_\_\_\_ Dates of Employment \_\_\_\_\_ Type of Work \_\_\_\_\_

**RECORDS RELEASE AUTHORIZATION**

TO: \_\_\_\_\_ Address \_\_\_\_\_  
FROM: \_\_\_\_\_ Name of High School \_\_\_\_\_

\_\_\_\_\_ Last Name \_\_\_\_\_ First Name \_\_\_\_\_ Middle \_\_\_\_\_ Maiden \_\_\_\_\_  
\_\_\_\_\_ Address \_\_\_\_\_

\_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_  
\_\_\_\_\_ Date of Birth \_\_\_\_\_ Date of Graduation \_\_\_\_\_  
\_\_\_\_\_ Social Security # \_\_\_\_\_ or Date of Withdrawal \_\_\_\_\_

I authorize you to forward my complete high school transcript of grades and credits to:  
Albuquerque Technical - Vocational Institute, Admissions Office, 525 Buena Vista SE, Albuquerque, New Mexico 87106  
Please bill me at my home address if there are any charges concerning this matter:

\_\_\_\_\_ Date \_\_\_\_\_ Signature of Student \_\_\_\_\_

4771m

**Albuquerque  
Technical-Vocational Institute  
525 Buena Vista SE  
Albuquerque, N.M. 87106**

PERMIT NO. 61

ADDRESS CORRECTION REQUESTED  
RETURN POSTAGE GUARANTEED

**Culinary Arts**

**Business Occupations**