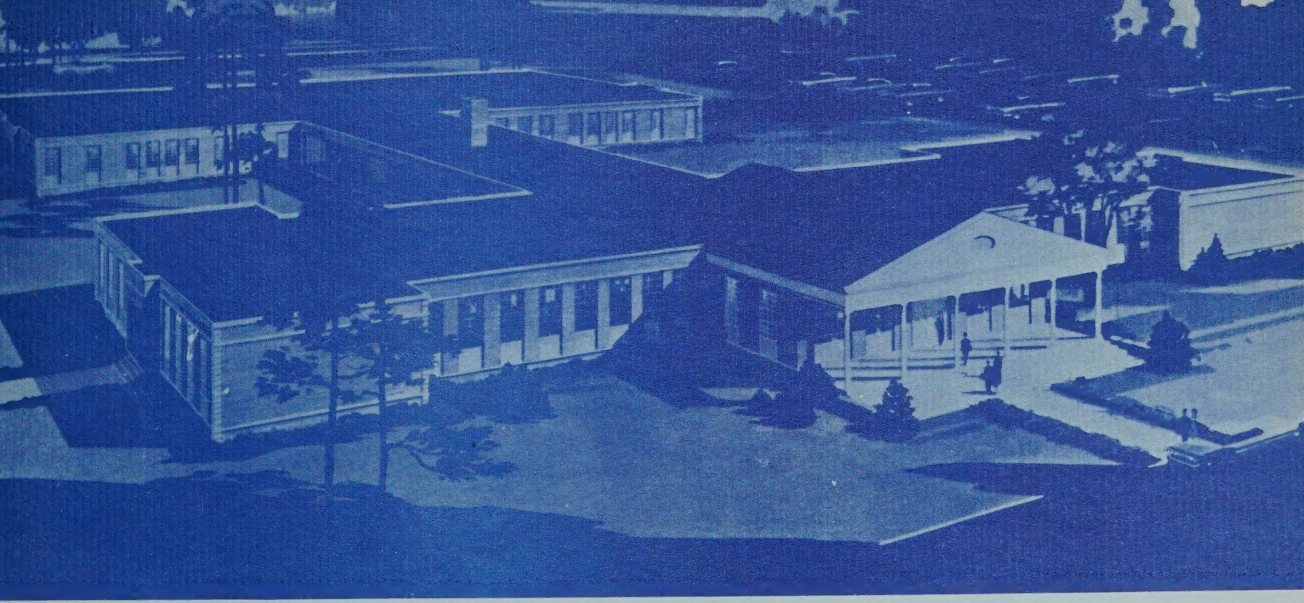
PITT
TECHNICAL INSTITUTE

1965 · 1967
CATALOGUE



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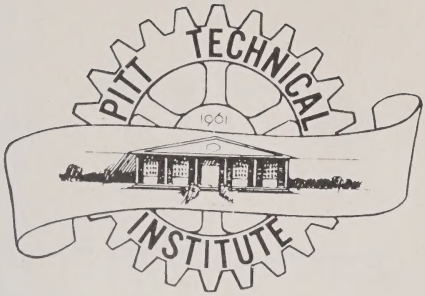

PITT TECHNICAL INSTITUTE

HIGHWAY 11, SOUTH
GREENVILLE, NORTH CAROLINA

ARCHIVES

CATALOGUE OF COURSES
DAY AND EVENING SCHOOL

VOLUME 2

1965 – 67

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Joseph E. Downing ..... Director of Agricultural Technology

DAILY CLASS SCHEDULE

8:30— 9:30	First Period
9:30—10:30	Second Period
10:30—11:30	Third Period
11:30—12:30	Lunch
12:30— 1:30	Fourth Period
1:30— 2:30	Fifth Period
2:30— 3:30	Sixth Period

FOREWORD

For many decades emphasis has been placed on academic education; indeed, Technical and Vocational Education was almost non-existent. Today the pendulum is at a more even position—Technical and Vocational education have assumed new status in this state.

The Pitt Technical Institute provides for the high-school graduates who do not plan to attend four year colleges or universities. Students in high schools are now being given an opportunity to become tradesmen and technicians.

The concept that Technical and Vocational education is just as honorable as an academic education is being implanted in the minds of our young people.

The Pitt Technical Institute offers a variety of programs designed to fill the needs of all the people of our area, and to provide the type of education which industry and business are demanding today.

William E. Fulford, Jr.
President

SCHOOL CALENDAR
1965–66

FALL QUARTER

Registration (Upper Classes)	September 7, 8	'65
Classes Start	September 9	"
Registration for Adult Evening Classes	September 13	"
Examinations	November 22, 23, 24,	"
Quarter Ends	November 24	"
Thanksgiving Holidays	November 25, 26	"

Total Number of Class Days — 55

WINTER QUARTER

Registration	November 29 30 Dec 1	'65
Classes Start	December 2	"
Christmas Holidays	December 22—Jan 2,	'66
Registration for Adult Evening Classes	January 17	"
Examinations	February 23, 24, 25	"
Quarter Ends	February 25	"

Total Number of Class Days — 55

SPRING QUARTER

Registration	March 2, 3	'66
Classes Start	March 7	"
Easter Holidays	April 8-10	"
Examinations	May 20, 21, 24	"
Quarter Ends	May 24	"
Graduation	May 24	"

Total Number of Class Days — 55

SUMMER QUARTER

Registration	June 6 7	'66
Classes Start	June 8	"
Independence Day Holiday	July 4	"
Examinations	August 20, 23, 24,	"
Quarter Ends	August 24	"
Graduation	August 24	"

Total Number of Class Days — 55

FACULTY

Mr. Joseph Downing	Agricultural Business
Mr. Milan W. Brickhouse	Auto Mechanics
Mr. W. C. Copeland	Machinist
Mr. Frances W. Dorey	Carpentry
Mr. Charles M. Lambright	Electronics
Mrs. Jo Ann Leith	Executive Secretary
Mrs. Willie Gray Mallison	English
Mr. Daniel C. Martin, Jr.	Radio and Television Servicing
Mr. Edwin F. Martin, Jr.	Architectural Drafting
Mr. Morris L. Peterson	Painting and Paperhanging
Mr. Ben L. Stocks	Masonry
Mr. Joseph M. Whitehurst	Mathematics
Mrs. James Smith	Librarian

OBJECTIVES AND PHILOSOPHY

It has been said that technical education is knowledge in action. Objectives of the Pitt Technical Institute embody the belief that the most meaningful knowledge is that which can be put to productive use.

Our objectives are envisioned as specific goals established to enlarge the potential of the individual student through education which will be useful to him and thus to his employer. The Institute will provide instruction in numerous special fields to meet the demands of an industrial community, but it will not ignore its responsibility to equip students with the ability to think creatively and abstractly. In addition, certain courses which place emphasis on an understanding of the American free enterprise system and develop interest in the betterment of mankind are common to all areas of study.

Our aims reflect a firm philosophy that education should equip every individual, insofar as his capacity permits, with the competence to attain his economic, social, intellectual, and spiritual goals in a democratic society. Physical and mental skills will be developed to the end that each student, as he trains and works in the various occupations, will be able to contribute to the maintenance, improvement, and defense of our American way of life.

HISTORY

Governor Luther Hodges, North Carolina's industry hunting executive, found a need to enlarge the potential skills of the State's citizens, thus providing a trained work force for new and expanding industries. Through his leadership, Industrial Education Centers were created by North Carolina's 1957 General Assembly. Funds for the schools and programs are provided by the State of North Carolina, the National Defense Education Act, and the counties.

In 1960 the people of Pitt County, under the leadership of Dr. Robert L. Humber, voted a bond issue for the establishment of an Industrial Education Center. The center was chartered by the State of North Carolina in 1961 to serve the needs of Pitt County and the surrounding area. In 1964 the school was designated as a technical institute by the State Board of Education.

After the completion of the new, modern building to house the school, the first classes were begun at the school on September 10, 1964.

LOCATION

The Pitt Technical Institute is located in a new, modern building on Highway 11, South of Greenville, between Greenville and Winterville.

Approximately 35,000 square feet of the space was designed to house a technical and industrial education program. The laboratories are spacious and well-equipped. The shop areas are well-lighted, spacious and functional. The Institute has available a modern technical library. Extension centers are located in Washington, Williamston, and Roanoke Rapids. The construction trades courses are taught in a completely renovated school building located in Fountain, twenty miles northwest of Greenville.

ADMISSION REQUIREMENTS

TECHNICAL PROGRAMS:

Applicants must be high school graduates or equivalent. Students should present two units of math to include either Algebra I, Algebra II, Geometry, Trignometry, or Advanced Math. The courses given in the technical programs are highly technical in nature. A student should have an aptitude in the sciences and mathematics.

TRADE PROGRAMS:

These programs are designed for students who have completed high school. Students will be admitted in this program who are not high school graduates if they demonstrate the ability to perform the skills required to satisfactorily complete the course of study.

EVENING AND EXTENSION PROGRAMS:

Requirements for admission to these programs will be determined by the course which is being offered.

ADMISSION PROCEDURES

Formal application for admission is made by submitting personal data called for on the regular application form, a transcript of high-school credits, or a demonstration of an aptitude for the course of his choice. This aptitude is to be determined by the GATB or other appropriate tests. Registration will be closed after a class has been in session five days.

STUDY AREAS

TECHNICAL

Technical education is intended to give students the necessary knowledge and skills to perform the more complex jobs as assistants to engineers, scientists, and other professional people. The jobs in which technicians are employed usually require knowledge and use of scientific and mathematical theory and specialized education or training in a chosen area of work. Many technician jobs require the ability to analyze and solve engineering and science problems and prepare formal reports on experiments, tests, or other projects. Design jobs often require creative ability. Many technician jobs require some familarity with one or more of the skilled trades, although not the ability to perform as a craftsman.

TECHNICAL — TWO-YEAR PROGRAMS

Agricultural Business
Electronics Technology
Executive Secretarial

TRADE

Trade education is intended to give the student the necessary skills that he may need to transform the ideas and plans of scientists and engineers into tangible goods or services. Many people in the trades area help to operate transportation systems, communication facilities, and atomic installations. Others build homes, office buildings, and factories. Large numbers work in factories where they build, install, control, maintain, and repair complex equipment needed by our highly modernized society. Still others repair automobiles, television sets, and washing machines. It has been said that, "He who hath a trade, hath an estate."

TRADE — ONE-YEAR PROGRAMS

Architectural Drafting
Automotive Mechanics
Carpentry
Electrical Installation and Maintenance
Machinist
Masonry
Painting and Paperhanging
Plumbing
Practical Nurse Education
Radio and Television Servicing
Sheet Metal Mechanics

ACTIVITIES

EXTENSION PROGRAM

Extension classes may be organized for interested groups in their own area. These courses are designed primarily for working men and women who want to upgrade their knowledge and skills in order that they may be able to advance in the area of work in which they are presently engaged. However, there are courses offered through which an underemployed person may attain knowledge and skills that will enable him to move into a more productive area of work. Classes usually run for two and one-half hours per night on two nights each week and generally range from ten to eighty hours in length.

EVENING PROGRAM

Evening classes are organized and held at the Pitt Technical Institute for those interested people who live in a commuting distance of the school. Courses such as machine shop and auto mechanics which are more technical in nature are held at the school where the needed equipment for instruction is located.

REGISTRATION FEES

There shall be no registration fees charged for extension classes.

INSTRUCTIONAL SUPPLY FEE

Instructional supply fee varies with course.

EXPENSES

TUITION PER QUARTER:

Tuition $30.00

REGISTRATION FEE: (once per year) — $2.00

An out-of-town student will be required to pay two-and-one-half times the state rate.

TEXTBOOKS:

Students are required to purchase the necessary books required for each course. For the convenience of the students, the Institute operates a book store where the necessary books and supplies for each course may be purchased.

EVENING AND EXTENSION:

Fees for these programs or courses will vary according to the cost of the course which is being offered.

DEGREES AND CERTIFICATES

Students who complete a program in the two-year technical curriculum will be awarded an Associate of Applied Science degree. A diploma indicating the type of program completed will be awarded a student who completes any of the trades, extension or evening programs.

FEES

All fees for the first quarter are due upon enrollment, unless prior arrangement for delayed payment is made with the Director of Student Personnel. Subsequent quarterly fees are due on the corresponding dates in the following months. Checks or money orders are to be made payable to Pitt Technical Institute.

INSURANCE

All students enrolled in the Institute is required to have school insurance. This is available at the rate of $3 per year.

WITHDRAWALS

1. A student's training may be interrupted for two consecutive unsatisfactory grades in any course. Students dismissed for this reason may apply for admission to re-enter the Institute at the beginning of the next quarter. A record of the student's progress is maintained at the Institute.
2. A student may withdraw from training at the end of any quarter due to illness or in special hardship cases, and re-enter at the beginning of the next identical quarter, provided the work done in the previous quarter was of passing grade.
3. Re-entrance will be permitted only when the student requests a personal interview and, in the event his application is subsequently approved, he may be reinstated.
4. Students with excessive absences may be asked to withdraw by vote of the faculty and admissions staff.

STUDENT CONDUCT

This Institute has a genuine concern for the integrity of all students enrolled. Students are expected to conduct themselves as ladies and gentlemen.

GRADING SYSTEM

93—100	Excellent
85— 92	Good
77— 84	Average
70— 76	Below Average
Below 70	Failing
Incomplete	

COUNSELING AND TESTING

Additional counseling and testing may be required by a student to insure proper placement within the curriculum. The counseling service will work with the individual to keep them informed of the progress they are making. Students are encouraged to avail themselves of the counseling and testing services.

SCHOLARSHIPS AND LOANS

REGULATIONS FOR VOCATIONAL STUDENT LOAN FUND

The State Board of Education at its meeting on October 3, 1963, adopted regulations for operation of a loan fund for students in vocational and technical education. This fund began with a gift by the North Carolina Consumer Finance Association, from member loan companies, and was accepted by the State Board of Education.

Recipients of student loans may be granted financial assistance of not more than $300 per school year, under regulations adopted October 3, by the Board of Education. The number of loans will be determined by the demand and the availability of funds.

The Board said, "The purpose of the Fund is to provide for financial assistance to those students enrolled full-time in vocational and technical education programs of an industrial education center, technical institute, or community college."

Main provisions in the loan fund regulations include the following: The Technical Institute shall furnish each applicant a copy of regulations and assure that he understands them. and shall make and collect the loans under procedures described in the regulations. The Institute will establish a committee responsible for selecting candidates to receive the loans.

NORTH CAROLINA BANKER'S STUDENT LOAN PLAN

The Student Loan Plan is a joint effort of Tarheel business, education and government which enables you to continue your education after high school even though you may not have the necessary money. Administered through the College Foundation, Inc., the plan is of special value to students who find it necessary to obtain part-time employment at their particular college, university, or technical school.

Any North Carolina citizen who is accepted for admission by an accredited college, university, or technical institute within the state is considered eligible to participate in the plan.

When your application for a student loan is received by your college admissions officer, he may then refer it to the College Foundation Incorporated. The Foundation's funds come from the many North Carolina banks taking part in the Student Loan Plan.

No repayment is required while you are enrolled as a student. After graduation, you arrange with the Foundation to repay your obligation. You may have up to four years in which to pay back the loan.

JAMES E. AND MARY Z. BRYAN STUDENT LOAN PLAN

Any bona fide resident of North Carolina who desires an education beyond the high school and who has been accepted by an accredited school either within or without the State of North Carolina is eligible to apply for a loan. Each applicant must meet certain academic standards, as related to the course of study he plans to pursue and must substantiate proof of financial need.

Students who wish to apply for a loan should contact the Student Aid Officer at the institution. The Student Aid Officer will supply application forms and detailed information concerning the loan procedures. When the student meets institutional requirements for financial assistance, the loan application will be forwarded to the Foundation's Raleigh office. When approved, the loan funds will be disbursed by the Foundation to the Institution and the student and will be sent to the Student Aid Officer. Completed applications must be returned to the Student Aid Officer—not returned directly to the Foundation.

Loans are made directly to the student; thus the student is the prime borrower. Co-signers are necessary on all notes and signatures are to be notarized. There is no payment required on the principal while the borrower is attending school as a full-time student. Interest at the rate of four per cent accrues while the student is in school and at six per cent during the repayment period. The maximum amount available per student is $1,000.00 per school year. Repayment shall begin ninety days after leaving school and shall extend over a period of six years if the total maximum amount of $4,000 is borrowed.

For additional information and applications, contact the Student Aid Officer at the school.

LIBRARY SERVICES

PLACEMENT SERVICE

The Institute will provide a placement service for its graduates. Prospective employers will be kept abreast with the curriculum and the numbers and names of students.

LIBRARY

An adequate library with over 5000 volumes is provided for all students with a competent and well qualified librarian.

STUDENT LOUNGE

An area is provided for students to use during their recess and leisure time. Vending machines are available for soft-drinks, pastry and sandwiches.

RECREATION

Recreational facilities are being added as space and finances will allow. Table tennis and other games are available.

STUDENT GOVERNMENT

In order to promote the general welfare of the school in a democratic fashion, the students organized a Student Council to facilitate communication between the student body, the faculty, and the administration. The council membership consists of a president, vice president, secretary-treasurer, and one member from each of the study programs in the school. The student council provides a means through which the students may practice good citizenship.

HOUSING AND BOARDING

The Pitt Technical Institute does not have dormitory or cafeteria facilities for students to use. Most of the students live within commuting distance of the school and drive back and forth each day. The school will assist students who wish to live near the school to find suitable living accomodations.

There are vending machines in the student lounge where students may purchase fresh sandwishes, hot soup, drinks, and other food items for their needs during the school day.

DRAFT DEFERMENT

Students will be exempted from the Selective Service draft as long as they are enrolled and doing satisfactory work at the school. Deferment forms will be sent the Selective Service Board upon request of the student.

SCHOOL OF TECHNOLOGY

EXECUTIVE SECRETARY

EXECUTIVE SECRETARY

About ten million people did clerical or some closely related kind of work in early 1963. A great many of these workers are occupied with the vast amount of recordkeeping and paperwork required in modern business and government offices. One out of every four clerical workers is a secretary, stenographer, or typist. In 1960, almost two million persons were employed in occupations which required stenographic skills. More than 95 percent of these workers—usually designated as stenographers or secretaries—were women.

The courses are designed to give the student adequate knowledge of office procedures and clerical skills needed to perform the duties required in a modern business office.

The student will get experience in the operation of the latest machines used in a modern business office. Employment in secretarial work is expected to continue its rapid growth. Many new jobs will be created by business expansion. Others will be created because of the large number of young women in these occupations who stop working after a few years to remain at home caring for their families.

JOB DESCRIPTION

Secretaries, in addition to doing stenographic work, relieve their employers of numerous routine duties and often handle a variety of business details on their own initiative. They may schedule appointments for their employers, arrange for airline tickets and hotel reservations, take care of some kinds of correspondence, and handle private or confidential records. Sometimes they also supervise other clerical personnel.

SUGGESTED CURRICULUM BY QUARTERS

FIRST YEAR

FIRST QUARTER	COURSE TITLE	C	L	CH
ENG—302	Communicative Skills: English	3	0	3
BUS—302	Typewriting (Or Elective)	2	3	3
MA —310	Business Mathematics	3	0	3
BUS—301	Introduction to Business	3	0	3
BUS—306	Shorthand (Or Elective)*	2	3	3
BUS—351	Business Law	3	0	3
		16	6	18
SECOND QUARTER				
ENG—305	Communicative Skills: Report Writing	3	0	3
BUS—303	Typewriting (Or Elective)*	2	3	3
BUS—307	Shorthand	2	3	3
BUS—320	Accounting	5	2	6
SOC—302	Economics	3	0	3
		15	8	18

C—Class Hours Per Week; L—Lab. Hours Per Week; CH—Credit Hours Per Quarter

* Elective courses must be selected from the business education curriculum.

THIRD QUARTER			
ENG—306 Communicative Skills: Business Communications	3	0	3
BUS—304 Typewriting	2	3	3
BUS—308 Shorthand	2	3	3
SOC—312 Personality Development	3	0	3
BUS—360 Office Machines	2	2	3
BUS—384 Terminology and Vocabulary	3	0	3
	15	8	18

SECOND YEAR

FOURTH QUARTER COURSE TITLE	C	L	CH
ENG—307 Communicative Skills: Oral Communications	3	0	3
BUS—356 Dictation and Transcription	3	2	4
DP —311 Introduction to Data Processing Systems	3	2	4
BUS—350 Advanced Typewriting	2	3	3
BUS—361 Office Machines	2	2	3
Elective**	3	0	3
	16	9	20
FIFTH QUARTER			
ENG—304 Communicative Skills: Speech	2	0	2
BUS—357 Dictation and Transcription	3	2	4
BUS—340 Secretarial Procedures	3	0	3
SOC—310 Applied Psychology	3	0	3
BUS—366 Budget and Record Keeping	3	0	3
Elective**	3	0	3
	17	2	18
SIXTH QUARTER			
BUS—370 Office Application	6	0	6
BUS—358 Dictation and Transcription	3	2	4
BUS—371 Office Management	3	0	3
Elective**	3	0	3
	15	2	16

** Elective courses must be selected from the technical curriculum.

COURSE DESCRIPTIONS BY QUARTERS

	C	L	CH
ENG—302 Communicative Skills: English	**3**	**0**	**3**

Designed to aid the student in the improvement of self-expression in business and technical composition. The approach is functional with emphasis on grammar, diction, sentence structure, punctuation, and spelling. Intended to stimulate the students in their day-to-day situations in industry and social life.

Prerequisite: None.

BUS—302 Typewriting 2 3 3
Required of all students who have had no previous typing. The touch system is taught. The proper manipulation of the keyboard and the operation of the machine are given special attention.
Prerequisite: None.

MA—310 Business Mathematics 3 0 3
This course stresses the fundamental operations and their application to business problems. Topics covered include payrolls, price marking, interest and discount, commission, taxes and pertinent uses of mathematics in the field of business.
Prerequisite: None.

BUS—301 Introduction to Business 3 0 3
A survey of the business world with particular attention devoted to the structure of the various types of business organizations, methods of financing, internal organization and management.
Prerequisite: None.

BUS—306 Shorthand 2 3 3
A beginning course in the theory and practice of reading and writing shorthand.
Prerequisite: None.

BUS—351 Business Law 3 0 3
A general course designed to acquaint the student with certain fundamentals and principles of business law, including contracts, negotiable instruments, partnerships, corporations, etc.
Prerequisite: None.

SECOND QUARTER

ENG—305 Communicative Skills: Report Writing 3 0 3
A study and practice in the fundamentals of report writing, including style and mechanics in preparing reports of various types, which are most likely to be used by people engaged in business and the professions.
Prerequisite: ENG—302

BUS—303 Typewriting 2 3 3
Continuation of theory and speed practice. Minimum speed of 40 words per minute for five minutes.
Prerequisite: BUS—302 or equivalent.

BUS—307 Shorthand 2 3 3
Continued study of theory with greater emphasis on dictation for speed building. Minimum dictation speed of 80 words per minute required for five minutes on new material.
Prerequisite: Bus—306 or a dictation speed of 50 words per minute on new material for five minutes.

BUS—320 Accounting 5 2 6
Principles, techniques and tools of accounting, for understanding of the mechanics of accounting—collecting, summarizing, analyzing, and reporting information about service and mercantile enterprises, to include practical application of the principles learned.
Prerequisite: MA—310.

SOC—302 Economics 3 0 3
The fundamental principles of economics including the institutions by which people gain a livelihood. Included is a study of the law of supply and demand and the principles bearing upon production, exchange, distribution, and consumption, both in relation to the individual enterprise and to society at large.
Prerequisite: None.

ENG—306 Communicative Skills: Business Communications 3 0 3
A course in writing purposeful, correct letters, telegrams, and minutes of meetings through experience in analyzing problem situations. Particular attention to letters involving credit, collections, complaints, orders, acknowledgements, remittances, and inquiry are also included in this course.
Prerequisite: ENG—305.

BUS—304 Typewriting 2 3 3
Emphasis on production typing problems and continues speed building. Minimum speed or 50 words per minute for five minutes.
Prerequisite: BUS—303

BUS—308 Shorthand 2 3 3
Theory and speed building. Introduction of office style dictation. Minimum dictation of 80 words per minute required for five minutes on new material.
Prerequisite: BUS—307.

BUS—312 Personality Development 3 0 3
Designed to help the student recognize the importance of the physical, intellectual, social, and emotional dimensions of personality. Emphasis is placed on grooming, personality improvement and methods.
Prerequisite: None.

BUS—360 Office Machines 2 2 3
To develop a working knowledge of the ten-key and full keyboard adding machines, printing calculators and duplicating equipment.
Prerequisite: None.

BUS—383 Terminology and Vocabulary 3 0 3
To develop an understanding of the terminology and vocabulary appropriate to the course of study, as it is used in businesses and professional offices.
Prerequisite: None.

FOURTH QUARTER

ENG—307 Communicative Skills: Oral Communications 3 0 3
Includes study in face-to-face conversation, delegating and accepting, understanding listening, questioning, conferences, and the use of words.
Prerequisite: BUS—306.

BUS—356 Dictation and Transcription 3 2 4
Develops the skill of taking dictation and of transcribing at the typewriter materials appropriate to the course of study, which includes a review of the theory and the dictation of familiar and unfamiliar material at varying rates of speed.
Prerequisite: BUS—308.

BUS—311 Introduction to Data Processing Systems 3 2 4
Fundamental concepts and operating principles of data processing systems, as an aid in developing a basic knowledge of computers, prerequisite to the detailed study of particular computer problems. This course is a prerequisite for all programming courses.
Prerequisite: None.

BUS—350 Advanced Typewriting 2 3 3
Emphasis in this course is placed on the development of individual production rates. The student learns the techniques needed in planning and in typing projects that closely approximate the work in a business office. These projects include review of letter forms, methods of duplication, statistical tabulation, and the typing of reports, manuscripts and legal documents.
Prerequisite: BUS—304.

BUS—361 Office Machines 2 2 3

A more intensive study of one of the machines used in Business Machines 360 plus instruction in the operation of the bookkeeping-accounting machines and the dictating and transcribing machines.

Prerequisite: BUS—360.

FIFTH QUARTER

ENG—304 Communicative Skills: Speech 2 0 2

This is a course in speech, designed to develop poise and ease before an audience and a clear, agreeable and forceful voice. Particular attention is placed upon the organization of material for oral delivery.

Prerequisite: ENG—307.

BUS—357 Dictation and Transcription 3 2 4

Covering materials appropriate to the course of study, the student develops the accuracy, speed, and vocabulary that will enable her to meet the stenographic requirements of business and professional offices.

Prerequisite: BUS—356.

BUS—340 Secretarial Procedures 3 0 3

All the general office skills outside of machine operation will be discussed. These include the following: receptionist duties, handling the mail, telephone techniques, travel information, telegrams, office records, purchasing of supplies, desk and office organization, insurance claims, and personal problems in getting along with others on the job.

Prerequisite: None.

SIXTH QUARTER

BUS—370 Office Application 6 0 6

During the sixth quarter only, students are assigned to work in a business or professional office for six hours per week. The objective is to provide actual work experience for secretarial students and an opportunity for the practical application of the skills and knowledge previously learned, according to the course of study.

Prerequisite: BUS—361.

BUS—358 Dictation and Transcription 3 2 4

Principally a speed building course, covering materials appropriate to the course of study, with emphasis on speed as well as accuracy.

Prerequisite: BUS—357.

BUS—371 Office Management 3 0 3

Presents the fundamental principles and successful practices used in getting office work accomplished. Case problems are used in making effective solutions to office management problems.

Prerequisite: BUS—340.

SOC—310 Applied Psychology 3 0 3

This course studies the procedures of building an efficient, enthusiastic business team and deals with the nature of the problems which arise in business organizations. The individual and his behavior are discussed, as well as the problems of influence and authority.

Prerequisite: None.

BUS—366 Budget and Record Keeping 3 0 3

The projection and preparation of operating budgets. Special attention is given to the involvement of individual departments and the role they play. Emphasis is placed on the necessity for accurate record keeping in order to evaluate the effectiveness of budget planning.

Prerequisite: BUS—320.

AGRICULTURAL TECHNOLOGY – BUSINESS

AGRICULTURAL TECHNOLOGY – BUSINESS

PURPOSE OF CURRICULUM

Rapid technological changes in farming and related agricultural businesses have given rise to the need for more technically trained people. A variety of agricultural businesses and industries employ persons to assist in marketing, processing, and distributing of farm products and providing services to the farmer. Many responsible positions in agricultural businesses and industries require technical training not available in high schools or in four-year colleges.

Agricultural production is undergoing tremendous changes. The trends are to larger, highly mechanized and specialized farms with huge capital investments. This means that there will be an increasing demand for capable farm managers to coordinate the purchasing, production and marketing of these larger agricultural production operations.

Farm managers of the future must possess greater technical competence to remain in the highly competitive production phase of agriculture. They must be able to cope with present production problems and adapt to rapid technological changes.

It is anticipated that changes in agriculture and the general economic environment will occur at a faster rate in the future. Profitable management of agricultural operations will demand successful adjustment to these changes. Decisions involved in these adjustments will require an individual with more training, knowledge and ability.

The Agricultural Business Curriculum is designed to help students acquire knowledge, understandings, and abilities in the broad field of agricultural business, including agricultural production. It combines knowledge of agriculture with business training to prepare the graduate for many of the varied employment opportunities in agriculture. The specific objectives of the Agricultural Business Curriculum are to develop the following student competencies:

1. Understanding of the principles of organization and management in agricultural businesses and industries.
2. Understanding of the application of the principles of business management to agricultural production, and the abilities essential to the management of an efficient well-organized farming operation.
3. Understanding of the basic principles of our economic system, marketing, credit, price concepts and governmental policies and programs relating to agriculture.
4. Understanding of the agricultural sciences most essentail to the production and marketing of agricultural products, including knowledge of the animal, plant, and soil sciences and their relationships with ability to apply these educational experiences to practical problems of agricultural business and industry.

JOB DESCRIPTION

As agricultural business and industry firms expand in size and number they are experiencing rapid changes in technologies of production, sales, and management, in an increasingly competitive environment. Future employees of such firms must be prepared to understand these changes and

adapt themselves accordingly. Successful completion of this curriculum should enable a person to assume responsibilities in an agricultural firm and should enable him to advance within such a business.

Upon graduation from this curriculum an individual should qualify for various jobs in agricultural business and industry such as salesman or store manager in farm supply stores; agricultural field serviceman; salesman, demonstrator or plant manager of feed and food companies; farm products inspector; salesman, or office managers of farm products marketing firms.

The trend towards larger farming operations with increased non-farm control of production means there will be greater employment opportunities for well-trained individuals who can efficiently and profitably supervise the production and marketing of agricultural products.

AGRICULTURAL TECHNOLOGY – BUSINESS

SUGGESTED CURRICULUM BY QUARTERS

FIRST QUARTER — COURSE TITLE	C	L	CH
ENG—302 Communictaive Skills: English	3	0	3
BUS—301 Introduction to Business	3	0	3
BUS—317 Sales Development	3	0	3
MA —310 Business Mathematics	3	0	3
AG —370 Animal Science	5	2	6
	17	2	18
SECOND QUARTER			
AG —490 Soil Science and Fertilizers	5	2	6
ENG—305 Communicative Skills: Report Writing	3	0	3
BUS—320 Accounting	5	2	6
AG —310 Introduction to Agricultural Economics	3	2	4
	16	6	19
THIRD QUARTER			
BUS—355 Interpreting Accounting Records	3	0	3
BUS—360 Office Machines	2	2	3
AG —312 Agricultural Marketing	5	2	6
AG —420 Plant Science	5	2	6
	15	6	18

FOURTH QUARTER — COURSE TITLE	C	L	CH
BUS—364 Business Finance	3	0	3
BUS—366 Budget and Record Keeping	3	0	3
AG —314 Farm Business Management	5	2	6
AG —326 Agricultural Programs and Agencies	3	2	4
Elective**	—	—	3
	14	4	19

FIFTH QUARTER			
ENG—304 Communicative Skills: Speech	2	0	2
SOC—310 Applied Psychology	3	0	3
AG —322 Agricultural Prices	3	0	3
AG —306 Farm Chemicals	5	2	6
Elective**	—	—	3
	13	2	17
SIXTH QUARTER			
BUS—368 Taxes	3	0	3
BUS—372 Principles of Supervision	3	0	3
AG —380 Livestock Diseases and Parasites	3	2	4
AG —342 Farm Mechanization	3	2	4
Elective**	—	—	3
	12	4	17

C—Class Hours Per Week; L—Lab. Hours Per Week; CH—Credit Hours Per Quarter
**Elective courses must be selected from the associate degree curriculum.
Six hours of the electives should be in agriculture.
Local institutions may add work experience to this curriculum.

COURSE DESCRIPTION BY QUARTERS

FIRST QUARTER C L CH

ENG—302 Communicative Skills: English 3 0 3

Designed to aid the student in the improvement of self-expression in business and technical composition. The approach is functional with emphasis on grammar, diction. sentence structure, punctuation, and spelling. Intended to stimulate students in applying the basic principles of English grammar in their day-to-day situations in industry and social life.

Prerequisite: None.

BUS—301 Introduction to Business 3 0 3

A survey of the business world with particular attention devoted to the structure of the various types of business organizations, methods of financing, internal organization, and management.

Prerequisite: None.

BUS—317 Sales Development 3 0 3

A study of retail, wholesale and specialty selling. Emphasis is placed upon mastering and applying the fundamentals of selling. Preparation for and execution of sales demonstrations required.

Prerequisite: None.

MA—310 Business Mathematics 3 0 3

This course stresses the fundamental operations and their application to business problems. Topics covered include payrolls, price marking, interest and discount, commission, taxes, and pertinent uses of mathematics in the field of business.

Prerequisite: None.

AG—370 Animal Science 5 2 6

An introductory animal science course covering the fundamental principles of livestock production. A study of the animal body and the basic principles of reproduction, genetics, growth, fattening, digestion, along with the selection, feeding, improvement, processing and marketing of livestock.

Prerequisite: None.

SECOND QUARTER

AG—490 Soil Science and Fertilizers 5 2 6

Soil types: basic principles of efficient management of soils and the growing of crops; care and cultivation of the soil, fertilization and conservation of soil fertility.

Prerequisite: None.

ENG—305 Communicative Skills: Report Writing 3 0 3

A study and practice in the fundamentals of report writing, including style and mechanics in preparing reports of various types, which are most likely to be used by people engaged in business and the professions.

Prerequisite: ENG—302.

BUS—320 Accounting 5 2 6

Principles, techniques and tools of accounting, for understanding of the mechanics of accounting—collecting, summarizing, analyzing, and reporting information about service and merchantile enterprises, to include practical application of the principles learned.

Prerequisite: MA—310.

AG—310 Introduction to Agricultural Economics 3 2 4

An introduction to economics, the functions of the economic system and agriculture's role in the economy. A review of the functions of the manager and an introduction to the principles he uses in making decisions to adjust to changing conditions. Analysis of the main sources of change which affect agricultural firms.

Prerequisite: None.

THIRD QUARTER

BUS—355 Interpreting Accounting Records 3 0 3

Designed to aid the student in developing a "use understanding" of accounting records, reports and financial statements. Interpretation, analysis, and utilization of accounting statements.

Prerequisite: BUS—320.

BUS—360 Office Machines 2 2 3

A general survey of the business and office machines. Students will receive training in techniques, processes, operation and application of the ten-key adding machines, full keyboard adding machines, calculator, and duplicating equipment.

Prerequisite: None.

AG—312 Agricultural Marketing 5 2 6

An analysis of the functions of marketing in the economy and a survey of the problems marketing faces. A review of the market structure and the relationship of local, terminal, wholesale, retail and foreign markets. Problems in the operations of marketing firms including buying and selling, processing, standardization and grading, risk taking and storage, financing, efficiency, and cooperation. Discussion of procedures of marketing such commodities as grain, cotton, livestock and tobacco.

Prerequisite: AG—310.

AG—420 Plant Science 5 2 6

An introductory general botany and crop science course covering the fundamental principles of the reproduction, growth, functions, and development of seed bearing plants with application to certain commercially important plants in North Carolina.

Prerequisite: None.

FOURTH QUARTER

BUS—364 Business Finance 3 0 3

Financing of business units, as individuals, partnerships, corporations, and trusts. A detailed study is made of the organization, management, and financing of businesses.

Prerequisite: None.

BUS—366 Budget and Record Keeping 3 0 3

The basic principles, methods, and procedures for preparation and operation of budgets. Special attention is given to the involvement of individual departments and the role they play. Emphasis on the necessity for accurate record keeping in order to evaluate the effectiveness of budget planning.

AG—314 Farm Business Management 5 2 6

A review of the functions of the manager of a business firm and the problems he faces. Development of the concept of planning by both partial and and complete budgeting. Review of the concepts of costs and the length of run in production. Practice in preparing enterprise budgets as an aid in choosing what to produce. Use of partial budgeting to find the least cost production procedure. Analysis of production data to select the level of production that yields the most net revenue. Relationship between size, efficiency and income of a farm. Review of procedures for evaluating the efficiency of the manager.

Prerequisite: AG—310.

AG—326 Agricultural Programs and Agencies 3 2 4

A review of the public agriculture programs and agencies that provides services for agricultural producers. The objectives, organization, functions and services of these organizations.

Prerequisite: AG—310.

FIFTH QUARTER

ENG—304 Communicative Skills: Speech 2 0 2

Technical speech to develop the speaking skills with emphasis on the dual role of communications as both a speaking and listening skill. Stress is placed on growth in poise and confidence of the student. Practice through individual speeches and group discussion. Recordings are made of the student's voice and used as an aid in speech development.

Prerequisite: ENG—302.

SOC—310 Applied Psychology 3 0 3

This course stresses the procedures of building an efficient, enthusiastic business team and deals with the nature of the problems which arise in business organizations. The individual and his behavior are discussed, as well as the problems of influence and authority.

Prerequisite: None.

AG—322 Agricultural Prices 3 0 3

An introduction to the functions of prices in our economic system and the effects of changing price levels. The influence consumer demand has on prices through price and income elasticities. A review of the influence of cycles and timing of production along with an examination of the use of future commodity contracts. Application of the principles of price analysis to price control and parity programs. Familiarization with the various tools widely used in historical analysis and forecasting.

Prerequisite: None.

AG—306 Farm Chemicals 5 2 6

A study of farm chemical pesticides, their ingredients, formulation, and farm application, with emphasis on the effective and safe use of chemicals in agricultural pest control.

Prerequisite: None.

SIXTH QUARTER

BUS—368 Taxes 3 0 3

Application of Federal and State taxes to various businesses and business conditions. A study of the following taxes: income. payroll, intangible, capital gain, sales and use, excise, and inheritance.

BUS—372 Principles of Supervision 3 0 3

Introduces the basic responsibilities and duties of the supervisor and his relationship to superiors, subordinates, and associates. Emphasis on securing an effective work force and the role of the supervisor. Methods of supervision are stressed.

Prerequisite: None.

AG—380 Livestock Diseases and Parasites 3 2 4

A course in animal health with emphasis on livestock sanitation practices and procedures and management factors relating to disease and parasite prevention. The cause, damage, symptoms, and treatment of the most prevalent livestock diseases and parasites in North Carolina.

Prerequisite: None.

AG—342 Farm Mechanization 3 2 4

A study of farm machinery management and labor-saving devices. The economics of selection and operation of farm machinery. Study and evaluation of feed grinders and mixers, storage facilities, materials handling systems and other labor-saving devices.

Prerequisite: None.

ELECTRONICS TECHNOLOGY

ELECTRONICS TECHNOLOGY

PURPOSE OF CURRICULUM

The field of electronics has developed at a rapid pace since the turn of the century. For many years the major concern of electronics was in the area of communications. Developments during World War II and in the period since have revolutionized production techniques. New industries have been established to supplement the need and demand for electronics equipment. Many opportunities exist for men and women with a technical education in electronics. This curriculum provides a basic background in electronic related theory with practical applications of electronics for business and industry. Courses are designed to develope competent electronics technicians who may take their place as an assistant to an engineer, or as a liaison between the engineer and the skilled craftsman.

JOB DESCRIPTION

The electronics technician will start in one or more of the following areas: research, design, development, production, maintenance or sales. He may be an assistant to an engineer, an engineering aide, laboratory technician, supervisor or equipment specialist. His training is similar to that of an engineer, but in less depth and more practical in application. He can function as a liaison between an engineer and the skilled craftsman.

SUGGESTED CURRICULUM BY QUARTERS

FIRST QUARTER	COURSE TITLE	C	L	CH
MA	—301 Technical Mathematics	5	0	5
PHY	—301 Physics: Properties of Matter	3	2	4
ENG	—301 Communicative Skills: Reading Improvement	2	0	2
DD	—307 General Drafting	2	3*	3
ELEC	—310 Direct Current Electricity	5	6	8
		17	11	22
SECOND QUARTER				
MA	—302 Technical Mathematics	5	0	5
PHY	—302 Physics: Work, Energy, Power	3	2	4
ENG	—302 Communicative Skills: English	3	0	3
ELEC	—311 Alternating Current Electricity	5	6	8
		16	8	20
THIRD QUARTER				
MA	—303 Technical Mathematics	5	0	5
ENG	—303 Communicative Skills: Technical Writing	3	0	3
SOC	—301 Human Relations	2	0	2
ELN	—312 Electronics I	5	8	9
		15	8	19

* "Manipulative laboratory" involves development of skills and job proficiency. Credit of one quarter hour for each three hours of laboratory.

FOURTH QUARTER			
MA —304 Technical Mathematics	3	0	3
PHY —304 Physics: Light and Sound	3	2	4
ENG —304 Communicative Skills: Speech	2	0	2
ELN —313 Electronics II	8	8	12
	16	10	21
FIFTH QUARTER			
ISc —301 Industrial Organization and Management	3	0	3
ELN —316 Transistor Applications	5	4	7
ELN —317 Communications and Ultra High Frequency	2	4	4
ELN —318 Special Circuitry	5	4	7
	15	12	21
SIXTH QUARTER			
SOC —302 Economics	3	0	3
ELN —319 Instrumentation	5	6	8
ELN —320 Circuit Analysis and Maintenance	5	6	8
	13	12	19

COURSE DESCRIPTION BY QUARTERS

FIRST QUARTER C L CH

MA—301 Technical Mathematics 5 0 5

The real number system is developed as an extension of natural numbers, integers, and rational numbers. Insight into the processes of arithmetic and algebra is provided. Additional topics include sets, equations, number bases, number lines, coordinate systems, trigonometry of the right triangle, vectors, dimensional analysis, and the derivative.

PHY—301 Physics: Properties of Matter 3 2 4

A fundamental course covering several basic principles of physics. The divisions included are solids and their characteristics, liquids in motion, gas laws and applications. Laboratory experiments and specialized problems dealing with these topics are part of this course.

Prerequisite: None.

ENG—301 Communicative Skills: Reading Improvement 2 0 2

A concentrated effort to improve the students ability to comprehend what he reads by training him to read more rapidly and accurately. Special machines are used for class drill to broaden the span of recognition, to increase eye coordination and work group recognition, and to train for comprehension in larger units. Reading faults of the individual are analyzed for improvement, and principles of vocabulary building are stressed.

Prerequisite: None.

DD—307 General Drafting 2 3* 3

An introductory course in drafting for students needing a knowledge of drawing principles and practices for reading and describing objects in the graphic language. The student is expected to gain basic skills in drawing with instruments, lettering, geometrical constructions, freehand sketching, and describing objects orthographically with principal views. Freehand sketching and orthographic reading are to be emphasized.

Prerequisite: None.

SOC—304 Human Relations

Principles of interpersonal relations including a consideration of motivation, feelings, emotions, and learning with reference to their applications to on-the-job situations; personal and group dynamics and self-adjustment.

Prerequisite: None.

ELN—312 Electronics I 5 8 9

A treatment of electron tubes, semi-conductors and their associated circuitry; thermionic emmission; diode and transistor operation is studied in detail. Application of vacuum tubes and semi-conductors in power supplies, voltage amplifiers, power amplifiers, and the advantages and disadvantages of each considered.

Prerequisites: ELEC—310, MA—301, PHY—301.

FOURTH QUARTER

MA—304 Technical Mathematics 3 0 3

A further study of analytical geometry, algebra, and calculus: the binomial expansion, arithmetic and geometric progressions, polynomial functions and methods of solution, integration techniques and use of integral tables, polar equations, and an introduction to solid analytical geometry.

Prerequisite: MA—303.

PHY—304 Physics: Light and Sound 3 2 4

A study of sound and wave motion and its technical applications to industry and related fields. Light and illumination. Principles of optical instruments. Practical aspects are emphasized.

Prerequisite: MA—301.

ENG—304 Communicative Skills: Speech 2 0 2

Technical speech to develop the speaking skills with emphasis on the dual role of communications as both a speaking and listening skill. Stress is placed on growth in poise and confidence of the student. Practice through individual speeches and group discussion. Recordings are made of the student's voice and used as an aid in speech development.

Prerequisite: ENG—302.

ELN—313 Electronics II 8 8 12

Design and analysis of vacuum tube and transistor oscillators, radio frequency analysis and intermediate frequency amplifiers. Frequency response, stage gain, distortion, noise characteristics and frequency stability will be explored.

Prerequisites: ELN—312, MA—303.

FIFTH QUARTER

ISc—301 Industrial Organization and Management 3 0 3

Organizational structure for industrial management; operational and financial activities, including accounting, budgeting, banking, credit and industrial risk, forecasting of markets, selection and layout of physical facilities; selection, training and supervision of personnel as found in typical industrial organizations.

Prerequisite: None.

ELN—316 Transistor Applications 5 4 7

Transistor circuitry and design problems. Junction diodes, transistor triodes, tunnel and zener diodes with associated circuitry. Temperature variation, transit time, and frequency response are studied in detail.

Prerequisites: ELN—313, MA—304.

ELN—Communications and Ultra High Frequency 2 4 4

Application of previously studied circuits to the broad field of communications and ultra high frequency. Amplitude and frequency modulated

ELEC—310 Direct Current Electricity 5 6 8

Basic electricity subjects include: structure of matter, electrical terminology and symbols, electron theory of current flow, magnets and magnetic fields. Rigorous mathematical analysis of direct current registive circuits. Ohm's Law, Kirchhoff's Laws, Thevenin's Theorem, Norton's Theorem, the Superposition Principle and loop current method. Solution of complex resistive networks. Fundamental principles of inductors, capacitors, and time constants circuits are introduced.

Prerequisite: None.

SECOND QUARTER

MA—302 Technical Mathematics 5 0 5

Algebraic operations are applied to linear, quadratic, and polynomial functions and special equations of second degree. Complex numbers are introduced and the study of the derivative is continued. Selected applications involving rates of change, maxima and minima, approximation, areas, and volumes are considered.

Prequisite: MA—301.

PHY—302 Physics: Work, Energy, Power 3 2 4

Major areas covered in this course are work, energy, and power. Instruction includes such topics as statics, forces, center of gravity, and dynamics. Units of measurement and their applications are a vital part of this course. A practical approach is used in teaching students the use of essential mathematical formulas.

Prerequisite: MA—301.

ENG—302 Communicative Skills: English 3 0 3

Designed to aid the student in the improvement of self-expression in business and technical composition. The approach is functional with emphasis of grammar, diction, sentence structure, punctuation, and spelling. Intended to stimulate students in applying the basic principles of English grammar in their day-to-day situations in industry and social life.

Prerequisite: None.

ELEC—311 Alternating Current Electricity 5 6 8

Alternating current and voltage: alternating current theory. Mathematical analysis is made of both sine and non-sine wave forms. Inductive reactance, and impedance characteristics of alternating current circuits are investigated. The use of vector and complex numbers in circuit impedance. Series and parallel resonant circuit conditions are compared and practical application of these conditions explained.

Prerequisite: ELEC—310, MA—301, PHY—301.

THIRD QUARTER

MA—303 Technical Mathematics 5 0 5

Ideas of algebra are used in a study of trigonometric, logarithmic and exponential functions. Selected applications of calculus reinforce this approach. Polar coordinates are introduced and their applications expanded. Complex numbers, vectors, coordinate systems and their applications constitute other areas of study.

ENG—303 Communicative Skills: Technical Writing 3 0 3

The fundamentals of English are utilized as a background for the organization and techniques of modern technical writing. Exercises in developing typical technical reports, using writing techniques and graphic devices, are completed by the students. Practical application in the preparation of a full-length technical report is required of each student at the end of the term.

Prerequisite: ENG—302.

transmitters, receivers, wave guides, cavity resonators; klystron, magnetron and traveling wave tubes are discussed.
Prerequisite: ELN—313.

ELN—318 Special Circuitry 5 4 7
The design and analysis of special circuitry: wave shaping, pulse techniques, broad-band amplifiers, diode switches, multivibrators, gates, magnetic amplifiers, chopper amplifiers, clipper and clamping circuits, synchro and servo systems, photo control devices, step counters and other specific application circuitry.
Prerequisites: ELN—314, ELN—316.

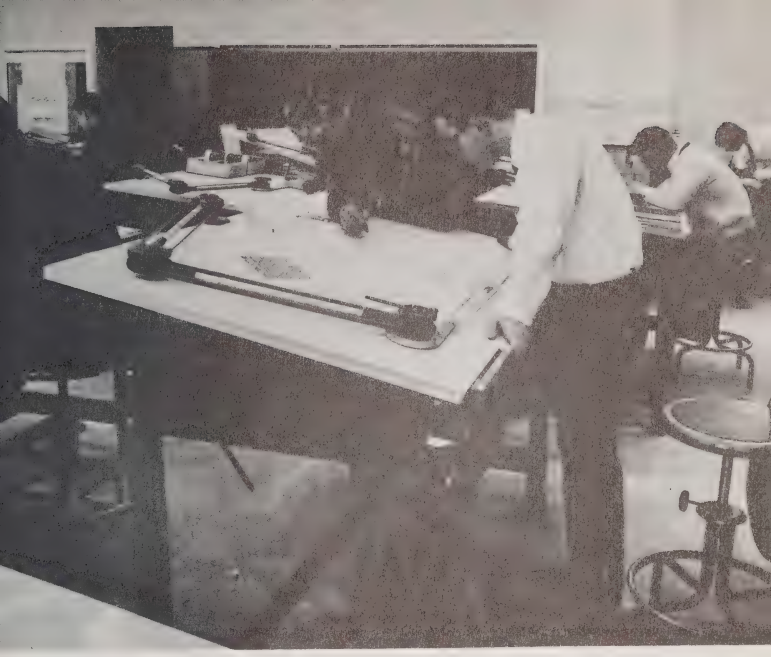
SIXTH QUARTER

SOC—302 Economics 3 0 3
The fundamental principles of economics including the institutions and practices by which people gain a livelihood. Included is a study of the laws of supply and demand and the principles bearing upon production, exchange, distribution, and consumption both in relation to the individual enterprise and to society at large.
Prerequisite: None.

ELN—319 Instrumentation 5 6 8
A basic study of sensory devices for detecting changes in pressure, temperatures, sound, light and electricity; the associated circuitry and indicating devices.
Prerequisites: ELN—316, ELN—318.

ELN—320 Circuit Analysis and Maintenance 5 6 8
Systematic analysis of complex circuitry. Methods of locating and correcting malfunctions. Troubleshooting by voltage measurements; resistance measurements, and waveform observations. Schematic reading and interpretation.
Prerequisites: ELN—319, MA—304, PHY—304.

SCHOOL OF TRADES



ARCHITECTURAL DRAFTING

ARCHITECTURAL DRAFTING

PURPOSE OF CURRICULUM

This curriculum is designed to prepare students to enter the field of architectural drafting. The first two quarters contain courses basic to all fields of drafting. The third and fourth quarters contain specialization and related courses that prepare one to enter architectural drafting occupations. Each course is prepared to enable an individual to advance rapidly in drafting proficiency upon entering the field of work. Courses are arranged in sequence to develop drafting skills and proficiency in mathematics and science. The draftsman associates with many levels of personnel—administrative, architects, engineers, skilled workmen—and must be able to communicate effectively with them. Courses to develop knowledge and skills in communication, human relations, economics and industrial organization are provided to assist the student in developing understanding and confidence in his relations with other persons.

JOB DESCRIPTION

DRAFTSMAN prepares clear, complete, and accurate working plans and detail drawings, from rough or detailed sketches or notes for engineering or manufacturing purposes, according to the specified dimensions: Makes final sketch of the proposed drawing, checking dimension of parts, materials to be used, the relation of one part to another, and the relation of the various parts to the whole structure. Makes any adjustments or changes necessary or desired. Inks in all lines and letters on pencil drawings as required. Exercises manual skill in the manipulation of triangle, T-square, and other drafting tools. Lays tracing paper on drawing and traces drawing in ink. Makes charts for representation of statistical data. Makes finished designs from sketches. Utilizes knowledge of various machines, engineering practices, mathematics, building materials, and other physical sciences to complete the drawings.

ARCHITECTURAL DRAFTSMAN. Performs duties of draftsman but specializes in organizing and drawing of working drawings from final preliminary sketches from the architectural designer, mechanical and structural drawings included.

SUGGESTED CURRICULUM BY QUARTERS

FIRST QUARTER	COURSE TITLE	C	L	SP	CH
DD —131	Drafting	3	0	12	7
MA —121	Geometry	3	0	0	3
ENG—101	Reading Improvement	2	0	0	2
PHY—104	Applied Physics I	1	2	0	2
DD —105	Drafting Analysis	2	0	0	2
		11	2	12	16

SECOND QUARTER					
DD —132	Drafting	3	0	12	7
MA —124	Algebra	5	0	0	5
ENG—102	Communication Skills	2	0	0	2
PHY—105	Applied Physics II	1	2	0	2
DD —135	Descriptive Geometry	1	4	0	3
		12	6	12	19

THIRD QUARTER				
DD —141 Architectural Drafting	3	0	12	7
MA —126 Trigonometry	3	0	0	3
PHY—106 Applied Physics III	1	2	0	2
DD —144 Architectural Materials and Methods	4	0	0	4
DD —143 Architectural Mechanical Equipment	3	0	0	3
	14	2	12	19

FOURTH QUARTER				
DD —142 Architectural Drafting	3	0	12	7
DD —145 Specifications and Contracts	3	0	0	3
CIV —101 Surveying	2	0	3	3
SOC—101 Human Relations	2	0	0	2
ISc —102 Industrial Organizations	3	0	0	3
	13	0	15	18

COURSE DESCRIPTION BY QUARTERS

FIRST QUARTER

DD—131 Drafting — C 3, L 0, SP 12, CH 7

An introduction to drafting and the study of drafting practices. Instruction is given in the selection, use and care of instruments, singlestroke lettering, applied geometry, freehand sketching consisting of orthographic and pictorial drawings. Orthographic projection, reading and instrument drawing of principal views, single auxiliary views (primary), and double (oblique) auxiliary views will be emphasized. Dimensioning and note practices will be studied with reference to the American Standards Association practices. Methods of reproducing drawings will be included at the appropriate time.
Prerequisite: None.

MA—121 Geometry — C 3, L 0, SP 0, CH 3

Fundamental properties and definitions; plane and solid geometric figures, selected general theorems, geometric construction of lines, angles and plane figures. Dihedral angles, areas of plane figures, volumes of solids. Geometric principles are applied to shop operations.
Prerequisite: None.

ENG—101 Reading Improvement — C 2, L 0, SP 0, CH 2

A concentrated effort to improve the student's ability to comprehend what he reads by training him to read more rapidly and accurately. Special machines are used for class drill to broaden the span of recognition, to increase eye coordination and word group recognition, and to trian for comprehension in larger units. Reading faults of the individual are analyzed for improvement, and principles of vocabulary building are stressed.
Prerequisite: None.

PHY—104 Applied Physics I — C 1, L 2, SP 0, CH 2

Introductory physics and its applications. Systems of measurement, theory of matter, properties of solids, liquids, and gases.
Prerequisite: None.

DD—105 Drafting Analysis 2 0 0 2

The trainee will make an analysis of the various drafting field options offered in the Center. This analysis will include selected reading assignments concerning the options. A study of the job descriptions concerning those areas in the "Dictionary of Occupational Titles", a study of blueprints in the option fields, and preparation of sketches illustrating major differences in the types of drawings.

Prerequisite: None.

DD—132 Drafting 3 0 12 7

The trainee will study simple and successive revolutions and their applications to practical problems. Sections and conventions will be studied and both detail and assembly sections will be drawn. Intersections and developments will be studied by relating the drawing to the sheet metal trades. Models of the assigned drawings will be made from construction paper, cardboard, or similar materials as a proof of the solution to the problems drawn.

Methods of drawing and projecting axonometric, oblique, and perspective drawings will be studied with emphasis on the practical applications of pictorial drawings. Various methods of shading will be introduced and dimensioning and sectioning of oblique and axonometric pictorials will be done.

Prerequisite: DD—131.

MA—124 Algebra 5 0 0 5

Basic concepts and operations of algebra: historical background of our base-10 number system; algebraic operations: addition, subtraction, multiplication and division; fractions, letter representation, grouping, factoring, ratio and proportions, variation; graphical and algebraic solution of first degree equations; solution of simultaneous equations by: addition and subtraction, substitution, graphing; exponents, logarithms, tables and interpolation.

Prerequisite: None.

ENG—102 Communication Skills 2 0 0 2

Development of ability to communicate effectively through the medium of good language usage in speaking and writing. Organizing thoughts, and presenting thoughts effectively in connection with problems.

Prerequisite: None.

PHY—105 Applied Physics II 1 2 0 2

Basic principles of electricity, types of electricity, and its production, transmission, and transformation. Such factors as the electron theory, electrical measurement, magnetism, electromagnetism, and the magnetic effects of electricity constitute major areas of study.

Prerequisite: PHY—104.

DD—135 Descriptive Geometry 1 4 0 3

Graphical analysis of space problems. The problems deal with practical design elements involving points, lines, planes, connectors, and a combination of these. Included are problems dealing with solid geometry theorums. Where applicable, each graphical solution shall be accompanied by the analytical solution.

Prerequisite: DD—131.

THIRD QUARTER

DD—141 Architectural Drafting 3 0 12 7

An introduction to architectural drafting. Further development of techniques in lettering, dimensioning, freehand sketching and instrument draw-

ing. Drawings of construction details, using appropriate material symbols and conventions. Working drawings, including plans, elevations, sections, scale details and full-size details will be prepared from preliminary sketches.
Prerequisite: DD—132.

MA—126 Trigonometry 3 0 0 3
Trigonometric ratios; solving problems with right triangles; using tables, and interpolating; solution of oblique triangles using law of sines and law of cosines; graphs of the trigonometric functions; inverse functions, trigonometric equations. All topics are applied to practical problems.
Prerequisites: MA—121, MA—124.

PHY—106 Applied Physics III 1 2 0 2
Physical principles of force, energy, work and power; equilibrium and the laws of motion; principles of machines, mechanical advantage. and transmission of power in practical applications and the use of vectors and graphical presentations.
Prerequisite: PHY—104.

DD—144 Architectural Materials and Methods 4 0 0 4
Materials used in the construction of architectural structures will be studied. Their economic values and limitations affected by locality, budget and codes. Field trips to construction sites and study of manufacturer's specifications for materials. Standard sizes of structural materials and modular construction techniques.
Prerequisite: None.

DD—143 Architectural Mechanical Equipment 3 0 0 3
General study of heating, air conditioning, plumbing and electrical equipment, materials and symbols. Building code requirements pertaining to residential and commercial structures. Reading and interpretation of working drawings by mechanical engineers.
Prerequisite: DD—132.

FOURTH QUARTER

DD—142 Architectural Drafting 3 0 12 7
Individual and group participation in the preparation of complete working drawings for a complex architectural structure. Study of drafting room organization and relationships of personnel within the architectural office.
Prerequisites: DD—141, DD—143, DD—144.

DD—145 Specifications and Contracts 3 0 0 3
The purpose and writings of specifications will be studied along with their legal and practical application to working drawings. Contract documents will be analyzed and studied for the purpose of client-architect-contractor responsibilities, duties and mutual protection.
Prerequisites: DD—141, DD—143, DD—144.

CIV—101 Surveying 2 0 3 3
Basic instrumentation and topography will be studied together with field trips and drafting room application of site surveying.
Prerequisite: MA—104.

SOC—101 Human Relations 2 0 0 2
Development of understanding of relationships to other persons through some of the basic principles of human psychology. The problems of the individual and his work situation are studied in relation to the established organization of modern business and industry and in relation to government practices and labor organization, with special emphasis on the operating responsibilities of good management.
Prerequisite: None.

ISc—102 Industrial Organizations 3 0 0 3
Methods, techniques, and practices of modern management in planning, organizing and controlling operations of a manufacturing concern. Introduction to the competitive system and the factors constituting product cost.
Prerequisite: None.

AUTOMOTIVE MECHANICS

AUTOMOTIVE MECHANICS

PURPOSE OF CURRICULUM

This curriculum provides a training program for developing the basic knowledge and skills needed to inspect, diagnose, repair or adjust automotive vehicles. Manual skills are developed in practical shop work. Thorough understanding of the operating principles involved in the modern automobile comes in class assignments, discussion, and shop practice.

Complexity in automotive vehicles increases each year because of scientific discovery and new engineering. These changes are reflected not only in passenger vehicles, but also in trucks, buses and a variety of gasoline-powered equipment. This curriculum provides a basis for the student to compare and adapt to new techniques for servicing and repair as vehicles are changed year by year.

JOB DESCRIPTION

Automobile mechanics maintain and repair mechanical, electrical, and body parts of passenger cars, trucks, and buses. In some communities and rural areas they also may service tractors or marine engines and other gasoline-powered equipment. Mechanics inspect and test to determine the causes of faulty operation. They repair or replace defective parts to restore the vehicle or machine to proper operating condition. They use shop manuals and other technical publications.

Automotive mechanics in smaller shops usually are general mechanics qualified to perform a variety of repair jobs. A large number of automobile mechanics specialize in particular types of repair work. For example, some may specialize in repairing only power steering and power brakes, or automatic transmissions. Usually such specialists have an all-round knowledge of automotive repair and may occasionally be called upon to do other types of work.

SUGGESTED CURRICULUM BY QUARTERS

FIRST QUARTER — COURSE TITLE	C	L	SP	CH
AUTO—121 Automotive Engines	3	0	12	7
MA —120 Fundamentals of Mathematics	5	0	0	5
ENG —101 Reading Improvement	2	0	0	2
PHY —104 Applied Physics I	1	2	0	2
	11	2	12	16
SECOND QUARTER				
AUTO—122 Automotive Electrical and Fuel Systems	3	0	12	7
PHY —105 Applied Physics II	1	2	0	2
ENG —102 Communication Skills	2	0	0	2
DD —121 Blueprint Reading	3	0	0	3
	9	2	12	14
THIRD QUARTER				
AUTO—123 Automotive Chassis and Suspensions	3	0	12	7
AHR —101 Automotive Air Conditioning	3	0	0	3
SOC —101 Human Relations	2	0	0	2
MECH—112 Welding	0	0	3	1
PHY —105 Applied Physics III	1	2	0	2
	9	2	15	15

FOURTH QUARTER				
AUTO—124 Automotive Power Train Systems	3	0	9	6
SOC —103 Management Procedures	3	0	0	3
AUTO—125 Automotive Servicing	3	0	9	6
	9	0	18	15

COURSE DESCRIPTION BY QUARTERS

FIRST QUARTER	C	L	SP	CH
AUTO—121 Automotive Engines	3	0	12	7

Development of a thorough knowledge and ability in using, maintaining, and storing the various hand tools and measuring devices needed in automotive repair work. Study of the construction and operation of components of automotive engines. Testing of engine performance; servicing and maintenance of pistons, valves, cams and camshafts, fuel and exhaust systems, cooling systems; proper lubrication; and methods of testing, diagnosing and repairing.

Prerequisite: None.

MA—120 Fundamentals of Mathematics	5	0	0	5

Practical number theory. Analysis of basic operations: addition, subtraction, multiplication and division. Fractions, decimals, powers and roots, percentages, ratio and proportion. Plane and solid geometric figures used in industry; measurement of surfaces and volumes. Introduction to algebra used in trades. Practice in depth.

Prerequisite: None.

ENG—101 Reading Improvement	2	0	0	2

A concentrated effort to improve the student's ability to comprehend what he reads by training him to read more rapidly and accurately. Special machines are used for class drill to broaden the span of recognition, to increase eye coordination and word group recognition, and to train for comprehension in larger units. Reading faults of the individual are analyzed for improvement, and principles of vocabulary building are stressed.

Prerequisite: None.

PHY—104 Applied Physics I	1	2	0	2

Introductory physics and its applications. Systems of measurement, theory of matter, properties of solids, liquid and gases.

Prerequisite: None.

SECOND QUARTER				
AUTO—122 Automotive Electrical and Fuel Systems	3	0	12	7

A thorough study of the electrical and fuel systems of the automobile. Battery cranking mechanism, generator, ignition, accessories and wiring; fuel pumps, carburators, and fuel injectors. Characteristics of fuels, types of fuel systems, special tools, and testing equipment for the fuel and electrical system.

Prerequisite: AUTO—121.

PHY—105 Applied Physics II	1	2	0	2

Basic principles of electricity, types of electricity, and its production, transmission, and transformation. Such factors as the electron theory, electrical measurement, magnetism, electromagnetism, and the magnetic effects of electricity constitute major areas of study.

Prerequisite: PHY—104.

ENG—102 Communication Skills	2	0	0	2

Development of ability to communicate effectively through the medium of good language usage in speaking and writing. Organizing thoughts, and

presenting thoughts effectively in connection with problems.

DD—121 Blueprint Reading 3 0 0 3

Interpretation and reading of blueprints. Development of ability to read and interpret blueprints, charts, instruction and service manuals, and wiring diagrams. Information on the basic principles of lines, views, dimensioning procedures, and notes.

Prerequisite: None.

THIRD QUARTER

AUTO—123 Automotive Chassis and Suspensions 3 0 12 7

Principles and functions of the components of automotive chassis. Practical job instruction in adjusting and repairing of suspension, steering and braking systems. Units to be studied will be shock absorbers, springs, steering systems, steering linkage, front end, types and servicing of brakes.

Prerequisite: AUTO—122.

AHR—101 Automotive Air Conditioning 3 0 0 3

General introduction to the principles of refrigeration; study of the assembly of the components and connections necessary in the mechanisms, the methods of operation, and control; proper handling of refrigerants in charging the system.

Prerequisite: PHY—105.

SOC—101 Human Relations 2 0 0 2

Development of understanding of relationships to other persons through some of the basic principles of human psychology. The problems of the individual and his work situation are studied in relation to the established organization of modern business and industry and in relation to government practices and labor organization, with special emphasis on the operating responsibilities of good management.

Prerequisite: None.

MECH—112 Welding 0 0 3 1

Welding demonstrations by the instructor and practice by students in the welding shop. Safe and correct methods of assembling and operating the welding equipment. Practice will be given for surface welding; bronze welding, silver-soldering, and flame cutting methods applicable to mechanical repair work.

Prerequisite: None.

PHP—106 Applied Physics III 1 2 0 2

Physical principles of force, energy, work and power; equilibrium and the laws of motion; principles of machines, mechanical advantage, and transmission of power in practical applications and the use of vectors and graphical presentations.

Prerequisites: PHY—104, MA—120.

FOURTH QUARTER

AUTO—124 Automotive Power Train Systems 3 0 9 6

Principles and functions of automotive power train systems: clutches, transmission gears, torque converters, drive shaft assemblies, rear axles and differentials. Identification of troubles, servicing, and repair.

Prerequisites: PHY—105, PHY—106, AUTO—123.

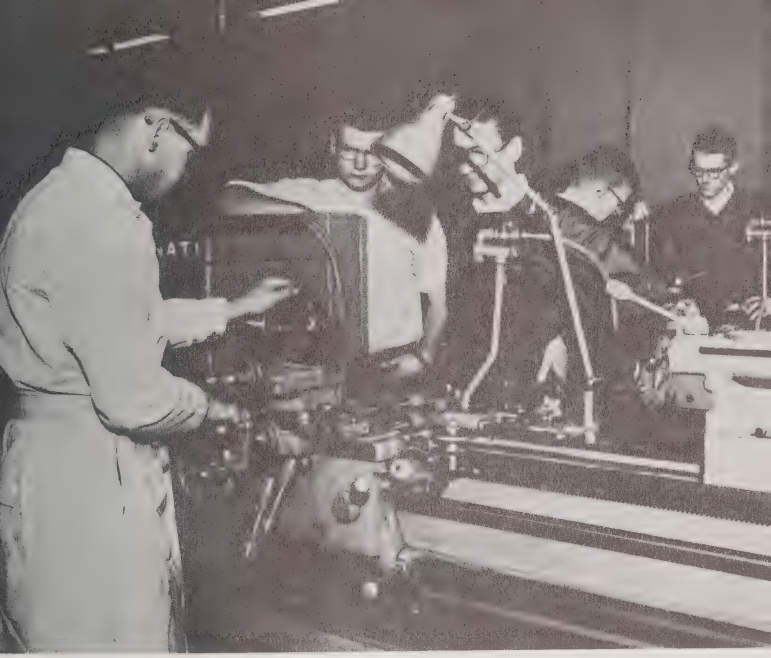
SOC—103 Management Procedures 3 0 0 3

An introduction to the business world, problems of small business operation, basic business law, business forms and records, financial problems, ordering and inventorying, layout of equipment and offices, methods of improving business, and employer-employee relations.

Prerequisite: None.

AUTO—125 Automotive Servicing 3 0 9 6

Emphasis is on the shop procedures necessary in determining the nature of troubles developed in the various component systems of the automobile. Troubleshooting of automotive systems, providing a full range of testing, adjusting, repairing and replacing experiences.
Prerequisite: AUTO—123.



MACHINIST TRADE

MACHINIST TRADE

PURPOSE OF CURRICULUM

This curriculum was prepared to meet a definite need for training of machinists. Surveys recently completed in North Carolina show that many of the existing industries lack time and facilities for training enough machinists to meet present and planned needs. Expanding industries already located in our State and new industries under development invariably express the need for skilled craftsmen who have the background knowledge and potential to advance.

This guide is designed to give learners the opportunity to acquire basic skills and the related technical information necessary to gain employment and build a profitable career in the machine shop industry in the State. It is comprised of the joint views of committees responsible for its development.

JOB DESCRIPTION

The machinist is a skilled metal worker who shapes metal parts by using machine tools and hand tools. His training and experience enable him to plan and carry through all the operations needed in turning out a machined product and to switch readily from one kind of product to another. A machinist is able to select the proper tools and material required for each job and to plan the cutting and finishing operations in their proper order so that he can complete the finished work according to blueprint or written specifications. He makes standard shop computations relating to dimensions of work, tooling, feeds, and speeds of machining. He often uses precision measuring instruments such as micrometers and gages to measure the accuracy of his work to thousandths of an inch.

This skilled worker must be able to set up and operate most types of machine tools. The machinist also must know the composition of metals so that he can heat and quench cutting tools and parts to improve machinability. His wide knowledge enables him to turn a block of metal into an intricate, precise part.

SUGGESTED CURRCIULUM BY QUARTERS

	COURSE TITLE	C	L	SP	CH
FIRST QUARTER					
MECH	—121 Machine Shop Theory and Practice	3	0	12	7
MA	—120 Fundamentals of Mathematics	5	0	0	5
DD	—122 Blueprint Reading	5	0	0	5
ENG	—101 Reading Improvement	2	0	0	2
		15	0	12	19
SECOND QUARTER					
MECH	—122 Machine Shop Theory and Practice	3	0	12	7
MA	—123 Machinist Mathematics	5	0	0	5
DD	—123 Blueprint Reading	3	0	0	3
PHY	—104 Applied Physics I	1	2	0	2
ENG	—102 Communication Skills	2	0	0	2
		14	2	12	19

THIRD QUARTER				
MECH—123 Machine Shop Theory and Practice	3	0	12	7
MECH—124 Structure of Metals	3	2	0	4
PHY —105 Applied Physics II	1	2	0	2
SOC —101 Human Relations	2	0	0	2
	9	4	12	15
FOURTH QUARTER				
MECH—125 Machine Shop Theory and Practice	3	0	12	7
ISc —101 Industrial Specifications	2	0	0	2
MECH—111 Oxyacetylene Welding	2	0	3	3
MECH—126 Heat Treating Practice	0	0	3	1
ISc —102 Industrial Organizations	3	0	0	3
	10	0	18	16

COURSE DESCRIPTION BY QUARTERS

FIRST QUARTER C L SP CH

MECH—121 Machine Shop Theory and Practice 3 0 12 7

An introduction to the machinist trade and the potential it holds for the craftsman. Deals primarily with the identification, care and use of basic hand tools and precision measuring instruments. Elementary layout procedures and processes of lathe, drill press, grinding (off-hand) and milling machines will be introduced both in theory and practice.

Prerequisite: None.

MA—120 Fundamentals of Mathematics 5 0 0 5

Practical number theory. Analysis of basic operations: addition, subtraction, multiplication and division. Fractions, decimals, powers and roots, percentages. ratio and proportion. Plane and solid geometric figures used in industry; measurement of surfaces and volumes. Introduction to algebra used in trades. Practice in depth.

Prerequisite: None.

DD—122 Blueprint Reading 5 0 0 5

Interpretation and reading of blueprints. Information on the basic principles of the blueprint; lines, views, dimensioning procedures and notes.

Prerequisite: None.

ENG—101 Reading Improvement 2 0 0 2

A concentrated effort to improve the student's ability to comprehend what he reads by training him to read more rapidly and accurately. Special machines are used for class drill to broaden the span of recognition, to increase eye coordination and word group recognition, and to train for comprehension in larger units. Reading faults of the individual are analyzed for improvement, and principles of vocabulary building are stressed.

Prerequisite: None.

SECOND QUARTER

MECH—122 Machine Shop Theory and Practice 3 0 12 7

Advanced operations in layout tools and procedures, power sawing, drill press, surface grinder, milling machine and shaper. The student will be introduced to the basic operations on the cylindrical grinder and will select projects encompassing all the operations, tools and procedures thus far used and those to be stressed throughout the course.

Prerequisite: MECH—121.

MA—123 Machinist Mathematics 5 0 0 5
Fundamental geometric concepts and construction of plane and solid figures, surface and volume measurements, and related problems; introduction to trigonometry of the right triangle. Introduces gear ratio, lead screw and indexing problems with emphasis on application to the machine shop. Practical applications and problems furnish the trainee with experience in geometric propositions and trigonometric relations to shop problems; concludes with an introduction to compound angle problems.
Prerequisite: MA—120.

DD—123 Blueprint Reading 3 0 0 3
Further practice in interpretation of blueprints as they are used in industry; study of prints supplied by industry; making plans of operations; introduction to drafting room procedures; sketching as a means of passing on ideas, information and processes.
Prerequisite: DD—122.

PHY—104 Applied Physics I 1 2 0 2
Introductory physics and its applications. Systems of measurement, theory of matter, properties of solids, liquids, and gases.
Prerequisite: None.

ENG—102 Communication Skills 2 0 0 2
Development of ability to communicate effectively through the medium of good language usage in speaking and writing. Organizing thoughts, and presenting thoughts effectively in connection with problems.
Prerequisite: None.

THIRD QUARTER

MECH—123 Machine Shop Theory and Practice 3 0 12 7
Advanced work on the engine lathe, turning, boring and threading machines, grinders, milling machine and shaper. Introduction to basic indexing and terminology with additional processes on calculating, cutting and measuring of spur, helical, and worm gears and wheels. The trainee will use precision tools and measuring instruments such as vernier height gages, protractors, comparators, etc. Basic exercises will be given on the turret lathe and on the tool and cutter grinder.
Prerequisites: MECH—121, MECH—122.

MECH—124 Structure of Metals 3 2 0 4
Elementary and practical approach to metals, their structure, markings, classifications and uses. Interpretation of properties and specifications of steels by use of manuals, catalogs, charts, etc.
Prerequisite: None.

PHY—105 Applied Physics II 1 2 0 2
Basic principles of electricity, types of electricity, and its production, transmission, and transformation. Such factors as the electron theory, electrical measurement, magnetism, electromagnetism, and the magnetic effects of electricity constitute major areas of study.
Prerequisite: PHY—104.

SOC—101 Human Relations 2 0 0 2
Development of understanding of relationships to other persons through some of the basic principles of human psychology. The problems of the individual and his work situation are studied in relation to the established organization of modern business and industry and in relation to government practices and labor organization, with special emphasis on the operating responsibilities of good management.
Prerequisite: None.

FOURTH QUARTER

MECH—125 Machine Shop Theory and Practice 3 0 12 7

Development of class projects using previously learned procedures in planning, blueprint reading, machine operations, final assembly and inspection. Additional processes on the turret lathe, tool and cutter grinder, cylindrical and surface grinder, advanced milling machine operations, etc. Special procedures and operations, processes and equipment, observing safety procedures faithfully and establishing of good work habits and attitudes acceptable to the industry.

Prerequisites: MECH—121, MECH—122, MECH—123.

ISc—101 Industrial Specifications 2 0 0 2

Organizing and studying machine tool and hand tool specifications, job sheets and procedure sheets. Catalogs, specification sheets, and manufacturer's handbooks serve as reference sources.

Prerequisite: None.

MECH—111 Oxyacetylene Welding 2 0 3 3

Basic welding procedures and practice. The trainee will gain experience in the gas welding of small parts and tools. This course will present gas welding as it may be used by the machinist in the repair and manufacture of tools and equipment.

Prerequisite: None.

MECH—126 Heat Treating Practice 0 0 3 1

Working knowledge of the methods of treating ferrous and nonferrous metals. The effects of hardening, tempering, and annealing upon the structure and physical properties of metals. Trainees will be given the opportunity to acquaint themselves with the equipment and processes of heat treating.

Prerequisite: MECH 124.

ISc—102 Industrial Organizations 3 0 0 3

Methods, techniques, and practices of modern management in planning, organizing and controlling operations of a manufacturing concern. Introduction to the competive system and the factors constituting product cost.

Prerequisite: None.

RADIO AND TELEVISION SERVICING

RADIO AND TELEVISION SERVICING

PURPOSE OF CURRICULUM

Within recent years improved electronic techniques have provided expanded entertainment and educational facilities in the form of monochrome and color television, frequency modulated radio, high fidelity amplifiers and stereophonic sound equipment. These developments requir expanded knowledge and skill of the individual who would qualify as a competent and up-to-date serviceman.

This curriculum guide provides a training program which will provide the basic knowledge and skills involved in the installation, maintenance and servicing of radio, television and sound amplifier system. A large portion of time is spent in the laboratory verifying electronic principles and developing servicing techniques.

JOB DESCRIPTION

A radio and television serviceman may be required to install, maintain and service amplitude modulated and frequency modulated home and auto radios, transistorized radios, monochrome and color television sets, intercommunication, public address and paging systems, high fidelity and stereophonic amplifiers, record players and tape recorders.

His work will require meeting the public both in the repair shop and on service calls. A serviceman who establishes his own business will also need to know how to maintain business records and inventory.

SUGGESTED CURRICULUM BY QUARTERS

	COURSE TITLE	C	L	SP	CH
FIRST QUARTER					
MA	—125 Electrical Mathematics	5	0	0	5
ELEC	—122 Direct and Alternating Current	7	8	3	12
ENG	—101 Reading Improvement	2	0	0	2
		14	8	3	19
SECOND QUARTER					
ELN	—122 Vacuum Tubes and Circuits	5	10	0	10
ELN	—123 Amplifier Systems	2	0	6	4
ENG	—102 Communication Skills	2	0	0	2
SOC	—101 Human Relations	2	0	0	2
		11	10	6	18
THIRD QUARTER					
ELN	—124 Vacuum Tubes and Circuits	4	4	0	6
ELN	—125 Radio Receiver Servicing	2	0	6	4
ELN	—126 Transistor Theory & Circuits	5	4	0	7
SOC	—103 Management Procedures	3	0	0	3
		14	8	6	20
FOURTH QUARTER					
ELN	—127 Television Receiver Circuits and Servicing	10	0	15	15
		10	0	15	15
	or				
ELN	—128 Television Receiver Circuits and Servicing	5	0	12	9
Elective (1)		5	0	6	7
		10	0	18	16
ELECTIVE					
ELN	—129 Single Side-band Systems	5	0	6	7
ELN	—130 Two-way Mobile Maintenance	5	0	6	7

FIRST QUARTER

	C	L	SP	CH
MA—125 Electrical Mathematics	5	0	0	5

An introductory algebra course with trigonometry and vectors needed in alternating current: algebraic operations of addition, subtraction, multiplication and division; use of letters and signs, grouping, factoring; exponents, ratios and proportions; algebraic and graphic solutions of first-degree equations; introduction to trigonometric functions, their graphs and applications to right triangles. Addition, subtraction and resolution of vector quantities.
Prerequisite: None.

ELEC—122 Direct and Alternating Current	7	8	3	12

A study of the structure of matter and the electron theory, the relationship between voltage, current and resistance in series, parallel and series-parallel circuits. Analysis of direct current circuits by Ohm's Law and Kirchhoff's Law; sources of direct current potentials. Fundamental concepts of alternating current flow; a study of reactance, impedance, phase angle, power and resonance and alternating current circuit analysis.
Prerequisite: None.

ENG—101 Reading Improvement	2	0	0	2

A concentrated effort to improve the student's ability to comprehend what he reads by training him to read more rapidly and accurately. Special machines are used for class drill to broaden the span of recognition, to increase eye coordination and word group recognition, and to train for comprehension in larger units. Reading faults of the individual are analyzed for improvement, and principles of vocabulary building are stressed.
Prerequisite: None.

SECOND QUARTER

ELN—122 Vacuum Tubes and Circuits	5	10	0	10

An introduction to vacuum tubes and their development; the theory, characteristics and operation of vacuum diodes, semi-conductor diodes, rectifier circuits, filter circuits, triodes and simple voltage amplifier circuits.
Prerequisite: ELEC—122, MA—125.

ELN—'23 Amplifier Systems	2	0	6	4

An introduction of commonly used servicing techniques as applied to monophonic and stereophonic high fidelity amplifier systems and auxiliary equipment. The operation and servicing of inter-communication amplifiers and switching circuits will also be taught.
Prerequisites: MA—125, ELEC—122.

ENG—102 Communication Skills	2	0	0	2

Development of ability to communicate effectively through the medium of good language usage in speaking and writing. Organizing thoughts, and presenting thoughts effectively in connection with problems.
Prerequisite: None.

SOC—101 Human Relations	2	0	0	2

Development of understanding of relationships to other persons through some of the basic principles of human psychology. The problems of the individual and his work situation are studied in relation to the established organization of modern business and industry and in relation to the established organization of modern business and industry and in relation to government practices and labor organization, with special emphasis on the operating responsibilities of good management.
Prerequisite: None.

THIRD QUARTER

ELN—124 Vacuum Tubes and Circuits 4 4 0 6

A continuing study of tubes and circuits; the theory, characteristics, and operation of the tetrode and pentode tubes, voltage and power amplifiers, tunable RF amplifiers, oscillators and demodulator circuits.

Prerequisites: ELN—123, ELN—122.

ELN—125 Radio Receiver Servicing 2 0 6 4

Principles of radio reception and practices of servicing; included are block diagrams of radio receivers, servicing techniques of AM and FM receivers by resistance measurements, signal injection, voltage analysis, oscilloscope methods of locating faulty stages and components and the alignment of AM and FM receivers.

Prerequisite: ELN—123, ELN—122.

ELN—126 Transistor Theory and Circuits 5 4 0 7

Transistor theory, operation, characteristics and their application to audio and radio frequency amplifier and oscillator circuits.

Prerequisite: ELN—123.

SOC—103 Management Procedures 3 0 0 3

An introduction to the business world, problems of small business operation, basic business law, business forms and records, financial problems, ordering and inventorying, layout of equipment and offices, methods of improving business, and employer-employee relations.

Prerequisite: None.

FOURTH QUARTER

ELN—127 Television Receiver Circuits and Servicing 10 0 15 15

A study of principles of television receivers, alignment of radio and intermediate frequency amplifiers, adjustment of horizontal and vertical sweep circuits will be taught. Techniques of troubleshooting and repair of TV receivers with the proper use of associated test equipment will be stressed. Additional study of more specialized servicing techniques and oscilloscope waveform analysis will be used in the adjustment, troubleshooting and repair of the color television circuits.

Prerequisites: ELN—126, ELN—125.

ELN—128'Television Receiver Circuits and Servicing 5 0 12 7

This course, taught in conjunction with an elective, will be a shortened version of ELN—127.

Prerequisites: ELN—126, ELN—125.

ELECTIVE:

ELN—129 Single Side-band Systems 5 0 6 7

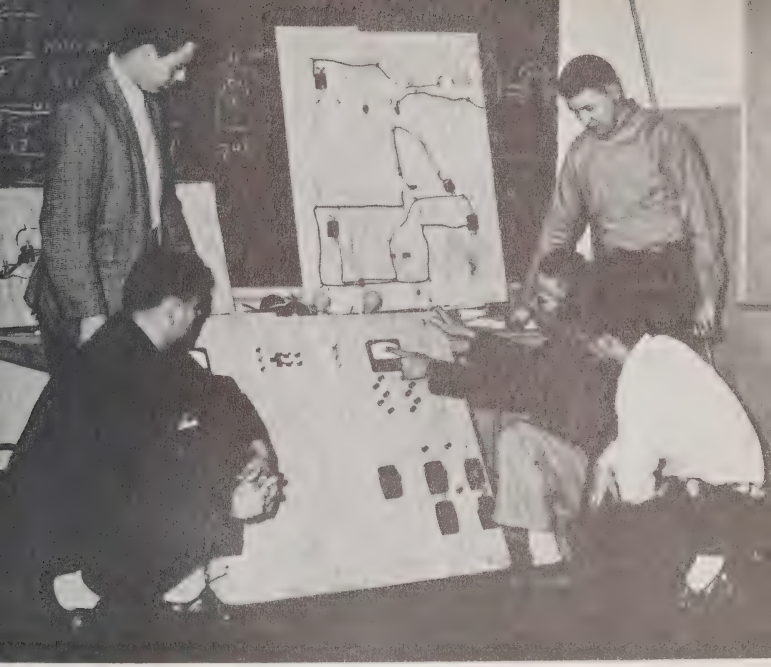
An introductory course of single side-band transmission system with carrier frequency or without and the associated balance modulator of phasing system used to produce this type of transmission. Time will be allotted also to the necessary circuitry in the receiver to receive this type transmission.

Prerequisites: ELN—126, ELN—125.

ELN—130 Two-way Mobile Maintenance 5 0 6 7

A course to acquaint the student with the theory and maintenance of fixed station and mobile station transmitters and receivers. Except for radio laws, sufficient information will be given to qualify the student to take the FCC second class radiotelephone license examination.

Prerequisites: ELN—126, ELN—125.



ELECTRICAL INSTALLATION AND MAINTENANCE

ELECTRICAL INSTALLATION AND MAINTENANCE

PURPOSE OF THE CURRICULUM

The rapid expansion of the national economy and the increasing development of new electrical products is providing a growing need for qualified people to install and maintain electrical equipment. By mid-1960 more than 350,000 were employed as either construction electricians or maintenance electricians. Between 5,000 and 10,000 additional tradesmen are required each year to replace those leaving the industry. It is expected that the total requirements for electrical tradesmen will reach 500,000 by 1965, and 700,000 by 1970. The majority of the electrical tradesmen today are trained through apprenticeship or on-the-job training programs.

This curriculum guide will provide a training program in the basic knowledge, fundamentals, and practices involved in the electrical trades. A large portion of the program is devoted to laboratory and shop instruction which is designed to give the student practical knowledge and application experience in the fundamentals taught in class.

JOB DESCRIPTION AND REQUIREMENTS

The graduate of the electrical trades program will be qualified to enter an electrical trade as an on-the-job trainee or apprentice, where he will assist in the planning, layout, installation, checkout, and maintenance of systems in residential, commercial, or industrial plants. He will have an understanding of the fundamentals of the National Electrical Code regulations as related to wiring installations, electrical circuits, and the measurements of voltage, current, power, and power factor of single and polyphase alternating circuits. He will have a basic knowledge of motor and motor control systems; industrial electronic control systems; business procedures, organization, and practices; communicative skills; and the necessary background to be able to advance through experience and additional training through up-grading courses offered in the center.

SUGGESTED CURRICULUM BY QUARTERS

FIRST QUARTER — COURSE TITLE	C	L	SP	CH
MA —125 Electrical Math	5	0	0	5
ELEC—122 Direct and Alternating Current	7	8	3	12
ENG —101 Reading Improvement	2	0	0	2
	14	8	3	19
SECOND QUARTER				
ELEC—123 Alternating Current & Direct Current Machines & Controls	5	10	0	10
DD —120 Building Trades Blue Print Reading and Sketching	5	0	0	5
ENG —102 Communication Skills	2	0	0	2
SOC —101 Human Relations	2	0	0	2
	14	10	0	19
THIRD QUARTER				
ELEC—124 Residential Wiring	5	0	9	10
ELN —118 Industrial Electronics 1	4	4	0	6

SOC —103 Management Procedures or				
ISc —102 Industrial Organizations	3	0	0	3
	12	4	9	17
FOURTH QUARTER				
ELEC—125 Commercial and Industrial Wiring	5	0	9	8
ELN —119 Industrial Electronics II	5	6	0	8
	10	6	9	16

COURSE DESCRIPTION BY QUARTERS

	C	L	SP	CH
MA—125 Electrical Math	5	0	0	5

A study of fundamental concepts of algebra; basic operations of addition, subtraction, multiplication, and division; solution of first order equations, use of letters and signs, grouping, factoring, exponents, ratios, and proportions; solution of equations; algebraically and graphically, a study of logarithms and use of tables; an introduction to trigonometric functions and their application to right angles; and a study of vectors for use in alternating current.

Prerequisite: None.

ELEC—122 Direct and Alternating Current	7	8	3	12

A study of the electrical structure of matter and electron theory, the relationship between voltage, current, and resistance in series, parallel, and series-parallel circuits. An analysis of direct current circuits by Ohm's Law and Kirchhoff's Law. A study of the sources of direct current voltage potentials. Fundamental concepts of alternating current flow, reactance, impedance, phase angle, power, and resonance. Analysis of alternating current circuits.

Prerequisite: None.

ENG—101 Reading Improvement	2	0	0	2

A concentrated effort to improve the student's ability to comprehend what he reads by training him to read more rapidly and accurately. Special machines are used for class drill to broaden the span of recognition, to increase eye coordination and word group recognition, and to train for comprehension in larger units. Reading faults of the individual are analyzed for improvement, and the principles of vocabulary building are stressed.

Prerequisite: None.

SECOND QUARTER

ELEC—123 Alternating Current & Direct Current Machines & Controls	5	10	0	10

Provides fundamental concepts in single and polyphase alternating current circuits, voltages, currents, power measurements, transformers, and motors. Instruction in the use of electrical test instruments in circuit analysis. The basic concepts of Ac and DC machines and simple system controls. An introduction to the type control used in small appliances, such as: thermostats, times, or sequencing switches.

Prerequisite: ELEC—122, MA—125.

DD—120 Building Trades Blue Print Reading and Sketching

5 0 0 5

Principles of interpreting blue prints and trade specifications common to the building trades. Development of proficiency in making three view and pictorial sketches.

Prerequisite: None.

ENG—102 Communication Skills 2 0 0 2

Development of the ability to communicate effectively with other individuals through the medium of good language usage in speaking and writing, to think more clearly, and to reason more forcefully in work problems pertaining to his job.

Prerequisite: None. 2 0 0 2

SOC—101 Human Relations 2 0 0 2

Assistance in acquiring greater understanding of relations with other people through learning and applying some of the basic principles of human psychology. A study of the problems of the individual and his work situation in relation to the established organization of modern business and industry and in relation to government practices and labor organizations, with special emphasis on the operating responsibilities of good management.

Prerequisite: None.

THIRD QUARTER

ELEC—124 Residential Wiring 5 0 9 8

Provides instruction and application in the fundamentals of blue print reading, planning, layout, and installation of wiring in residential applications, such as: services, switch boards, lighting, fusing, wire sizes, branch circuits, conduits, National Electrical Code regulations in actual building mock-ups.

Prerequisites: ELEC—123, DD—120.

ELN—118 Industrial Electronics I 4 4 0 6

Basic theory, operating characteristics, and application of vacuum tubes, such as: diodes, triodes, tetrodes, pentodes, and gaseous control tubes. An introduction to amplifiers using triodes, power supplies using diodes, and other basic applications.

Prerequisite: ELEC—123.

SOC—103 Management Procedures 3 0 0 3

Development of procedures to familiarize the prospective businessman with the many important functions that must be carried on in the operation of a small business or enterprise. An introduction to the business world; problems of small business operation; basic business law, forms, and records; financial, ordering, and inventory problems; layout of equipment and offices; and methods of improving business and employer-employee relations.

Prerequisite: None.

ISc—102 Industrial Organizations 3 0 0 3

FOURTH QUARTER

ELEC—125 Commercial and Industrial Wiring 5 0 9 8

Layout, planning, and installation of wiring systems in commercial and industrial complexes, with emphasis upon blue print reading and symbols, the related National Electrical Codes, and the application of the fundamentals to practical experience in wiring, conduit preparation, and installation of simple systems.

Prerequisite: ELN—118, ELEC—124.

ELN—119 Industrial Electronics II

Basic industrial electronic systems, such as: motor controls, alarm systems, heating systems and controls, magnetic amplifier controls, welding control systems using thyratron tubes, and other basic types of systems commonly found in most industries.

MASONRY

MASONRY

The demand and the necessity for shelter which is equaled only by the demand and necessity for food means that the masonry trade offers assurance of permanent employment. The masonry trade is, therefore, essential to the well-being and advancement of mankind.

This course is designed to prepare students who are vocationally competent to take their places in the labor market along with journeymen brickmasons. The length of this course is to be 4 quarters.

Any student accepted for this course should be capable of successfully completing the course and he should be able to progress on the job after employment. There should be a close mutual relationship between the school administration, and members of the Craft Committee for masonry work to assure adequate trade preparatory training to meet local needs in the masonry trade.

OBJECTIVES

1. To develop within the student the correct habits and techniques of using all masonry tools, and of mixing mortar.
2. To develop work habits and to teach proper safety procedures the student will use in the trade.
3. To teach technical knowledge through related subjects as well as the manipulative skills in the masonry trade.
4. To present a variety of experiences and problems in order to develop the student's ability to cope with the practical problems which will be encountered in the trade.

SUGGESTED CURRICULUM BY QUARTERS

FIRST QUARTER — COURSE TITLE	C	S	CH
MAS—121 Shop Theory and Practice	4	10	7
MA —120 Fundamentals of Mathematics	5	0	5
DD —122 Blue Print Reading	5	0	5
	14	10	17
SECOND QUARTER			
MAS—122 Shop Theory and Practice	5	15	10
MA —121 Fundamentals of Mathematics	3	0	3
DD —123 Blue Print Reading	3	0	3
	11	15	16
THIRD QUARTER			
MAS—123 Shop Theory and Practice	3	20	10
SOC —101 Human Relations	2	0	2
	5	20	12
FOURTH QUARTER			
MAS—124 Shop Theory and Practice	3	20	10
SOC —103 Management Procedures	3	0	3
	6	20	13

FIRST QUARTER C SP CH

MAS—121 Shop Theory and Practice 4 10 7

This unit provides an introduction to the masonry trade. An introduction to the practical masonry tools is provided covering the identification, proper use, and care. The fundamentals of trowel manipulation in pick-up, spreading, furrowing, and cutting mortar will be taught. Shop practice is gained by working on 4" projects dealing with placing, racking, jambing and toothing of bricks. Safety will be emphasized in all shop instruction and practice.

MA—120 Fundamentals of Mathematics 5 0 5

Practical number theory. Analysis of basic operations: addition, subtraction, multiplication and division. Fractions, decimals, powers and roots, percentages, ratio and proportion. Plane and solid geometric figures used in industry; measurement of surfaces and volumes. Introduction to algebra used in trades. Practice in depth.

DD—122 Blue Print Reading 5 0 5

Interpretation and reading of blue prints. Information on the basic principles of the blue print; lines, views, dimensioning procedures and notes.

SECOND QUARTER

MAS—122 Shop Theory and Practice 5 15 10

The student will construct block, brick veneer and block and brick, walls in the basic bonds. Additional practice in the making of 8" and 12" corner constructions and the continuous line drills will be provided. The layout of a building, the footings, the foundation walls, and the footing anchorage will be taught and practice given.

MA—121 Fundamentals of Mathematics 3 0 3

Fundamental properties and definitions; plane and solid geometric figures, selected general theorems, geometric construction of lines, angles and plane figures. Dihedral angles, areas of plane figures, volumes of solids. Geometric principles are applied to shop operations.

DD—123 Blue Print Reading 3 0 3

Further practice in interpretation of blue prints as they are used in industry; study of prints supplied by industry; making plans of operations; introduction to drafting room procedures; sketching as a means of passing on ideas, information and processes.

THIRD QUARTER

MAS—123 Shop Theory and Practice 3 20 10

Instruction and practice will be given the construction of veneer, cavity brick faced tile, and structural tile walls. The construction of arches and lintels, along with additional practice in building 16" and 12" corner leads and walls with door and window openings will be covered. Instruction and practice will be given in constructing block and corner leads with 4", 6", 8", and 12" concrete and cinder blocks.

SOC—101 Human Relations 2 0 2

Development of understanding of relationships to other persons through some of the basic principles of human psychology. The problems of the individual and his work situation are studied in relation to the established organization of modern business and industry and in relation to government practices and labor organization, with special emphasis on the operating responsibilities of good management.

FOURTH QUARTER

MAS—124 Shop Theory and Practice 3 20 10

After the information lessons on the following, the student will construct one or more fireplaces, mantels, chimneys, flues, glass block panels, steps, walkways, patios, and circular masonry work.

SOC—103 Management Procedures 3 0 3

An introduction to the business world problems of small business operation, basic business law, business forms and records, financial problems, ordering and inventorying, layout of equipment and offices, methods of improving business, and employer-employee relations.

PAINTING AND PAPER – HANGING

PAINTING AND PAPER-HANGING

PURPOSE OF CURRICULUM

It is generally understood that the complexities of the painting and paperhanging industry, in this age, preclude a complete mastery of the trade, but a broad understanding of the basic principles, is essential. Unless the painter and paper-hanger knows the "whys" of his trade, he will be "adrift in a strange land". It is, therefore, the purpose of this cirriculum to develop an understanding of principles, processes and procedures applicable to painters and paper-hangers. The curriculum provides time for practical application of principles learned, in order to develop skills necessary to enter the trade as an apprentice.

JOB DESCRIPTION AND REQUIREMENTS

Painting and paperhanging are separate skilled building trades, although many craftsmen in these trades do both types of work. Painters prepare the surfaces of buildings and other structures and then apply paint, varnish, enamel, lacquer and similar materials to these surfaces. Paperhangers cover room interiors with paper, fabric, vinyls, or other materials.

One of the important duties of the painter, especially in repainting, is to prepare the surface. Loose paint must be removed by scraping or by heating with a blowtorch and then scraping. Grease must be removed, nail holes and cracks filled, rough spots sandpapered, and dust brushed off. Often, surfaces must be covered with a prime coat or sealer to provide a suitable surface or base on which to apply the new paint. Paint is applied to many kinds of materials, including wood, structural steel, and clay products, generally by means of a brush, spray gun, or roller.

A painter must be skilled in handling brushes and other painting tools, in order to apply paint thoroughly, uniformly, and rapidly to any type of surface. In addition, he must be able to mix paints, match colors, and must have a knowledge of color harmony. He must also know the characteristics of common types of paints and finishes from the standpoints of durability, suitability for different purposes, and ease of handling and application.

Painters must know how to erect the scaffolding from which they often work, including "swing stages" (scaffolds suspended by ropes or cables attached to roof hooks) and "bosun chairs" which are used to work on tall buildings and other structures.

Painters use spray guns to paint surfaces or objects which are difficult to paint with a brush such as lattices, cinder and concrete blocks, and radiators. They also use spray guns on large areas which can be sprayed with a minimum of preparation. When using a roller (a rotating applicator covered with a soft material), the painter rolls the applicator over the surface to be covered.

The paperhanger first prepares the surface to be covered. In new work, he applies "sizing", a prepared material which makes the plaster less porous and assures better sticking of the paper to the surface. In redecorating work, it may be necessary to remove old paper by soaking, or if there are many layers, by steaming. In many cases it is also necessary for paperhangers to do minor plaster patching, in order to get a smooth surface for the covering material.

When the surface has been prepared, the paperhanger measures the area

to be covered and cuts the paper to size. He mixes a paste and applies it to the reverse side of the paper. The pastecoated paper is then placed on the wall or ceiling in strips and smoothed into place with a dry brush. The paperhanger matches the adjacent edges of strips of figured paper, cuts overlapping ends, and smoothes the seams between strips with a roller or other special tool. When working with wall coverings other than paper, the paperhanger follows the same general procedure, except that he applies an adhesive other than paste.

SUGGESTED CURRICULUM BY QUARTERS

FIRST QUARTER COURSE TITLE	C	L	SP	CH
PD —101 Introduction to the Trade	1	0	0	1
ENG—101 Reading Improvement	2	0	0	2
MA —120 Fundamentals of Math	5	0	0	5
PD —102 Tools, Equipment and Safety	2	0	6	4
PD —103 Basic Preparatory and Application of Materials	2	0	10	7
	12	0	16	19
SECOND QUARTER				
PD —104 Color in Paints and Coating Materials	3	0	5	5
PD —105 Wood Finishes	2	0	5	4
PD —106 Specialty Finishes and Coatings	2	0	5	4
PD —107 Paper Hanging and Hanging of Specialty Materails	2	0	5	4
	9	0	20	17
THIRD QUARTER				
PD —108 Paper Hanging and Hanging of Specialty Materials	2	0	10	5
DD —120 Basic Blue Print Reading	2	3	0	3
PD —109 Industrial Painting	2	0	5	4
SOC —101 Human Relations	2	0	0	2
	8	3	15	14
FOURTH QUARTER				
PD —111 Interior Decorating	3	0	15	8
PD —110 Estimating	5	0	2	6
SOC —103 Business Management	3	0	0	3
Elective	3	0	0	3
	14	0	17	20

COURSE DESCRIPTION BY QUARTERS

FIRST QUARTER

PD—101 Introduction to the Trade 1 0 0 1

This course investigates the history of the painting and paper-hanging industry. An appreciation for the occupation in which a person is engaged will generally help him to become better qualified to fill his duties.

ENG—101 Reading Improvement 2 0 0 2

A concentrated effort to improve the student's ability to comprehend what he reads by training him to read more rapidly and accurately. Special machines are used for class drill to broaden the span of recognition, to increase eye coordination and word group recognition, and to train for comprehension in larger units. Reading faults of the individual are analyzed for improvement, and principles of vocabulary building are stressed.

Prerequisite: None.

MA—120 Fundamentals of Math 5 0 0 5

A study of the fundamental concepts of algebra, basic operations of addition, subtraction, multiplication, and division; solutions of first order equations, use of letters and signs, exponents, ratios, and proportions; solution of simple equations. An introduction of geometry.

PR—102 Tools, Equipment and Safety 2 0 6 4

A study of tools and equipment of the trade. The apprentice who would become a skilled journeyman must be able to determine the most efficient tool to use in a given situation, and he must be able to use that tool as it was designed to be used.

This course includes instruction in personal safety, not only as regards the use of otherwise safe equipment, but also in matters of personal cleanliness and healthful habits.

PD—103 Basic Preparation and Application of Materials 2 0 10 17

This course includes failures which occur in paint and coating films, preparation of materials for painting, and papering, and special attention to the preparation of plaster, masonry and concrete surfaces.

Attention is directed to the selection of the proper paints, and the preparation and application of paints.

SECOND QUARTER

PD—104 Color in Paint and Coating Materials 3 0 5 5

This course places emphasis on the basic theory of color and color harmony. The student will make a color wheel and become familiar with elaborate schemes for classifying colors. A study of systems devised to identify and analyze, and measure color will be included.

PD—105 Wood Finishes 2 0 5 4

This course includes study of the types of wood and their preservation, preparation and sanding, removing finish and refinishing, bleaching, staining. The use of filler, sealer, varnish, shellac, lacquer, wax, and oil for woods are included. Techinques of rubbing, polishing, buffing and repairing will be emphasized.

PD—106 Specialty Finishes and Coatings 2 0 5 4

Instruction includes experiences in margleizing, graining, texturing, glazing, and antiquing; stenciling, striping and lining.

PD—107 Paper-Hanging and Hanging of Specialty Materials 2 0 5 4

This course is a study of preparation of surfaces, measuring, tools and equipment for the paper-hanging, adhesives and their application, and hanging standard papers. Special instruction regarding papering around windows and doors, and the use of fine papers, fabrics, and vinyls.

THIRD QUARTER

PD—108 Paper-Hanging and Hanging of Specialty Materials 2 0 10 5

This course is a continuation of PD—107.

DD—120 Basic Blue Print Reading 2 3 0 3
Principles of interpreting blue prints and trade specifications common to the building trades. Development of proficiency in making three view and pictorial sketches.

PD—109 Industrial Painting 2 0 5 4
This course deals with problems encountered in industrial painting not common to residential painting. The maximum utilization of equipment, labor and materials is especially emphasized in this course.

SOC—101 Human Relations 2 0 0 2
Assistance in acquiring greater understanding of relation with other people through learning and applying some of the basic principles of human psychology. A study of the problems of the individual and his work situation in relation to the established organization of modern business and industry and in relation to government practices and labor organizations, with special emphasis on the operating responsibilities of good management.

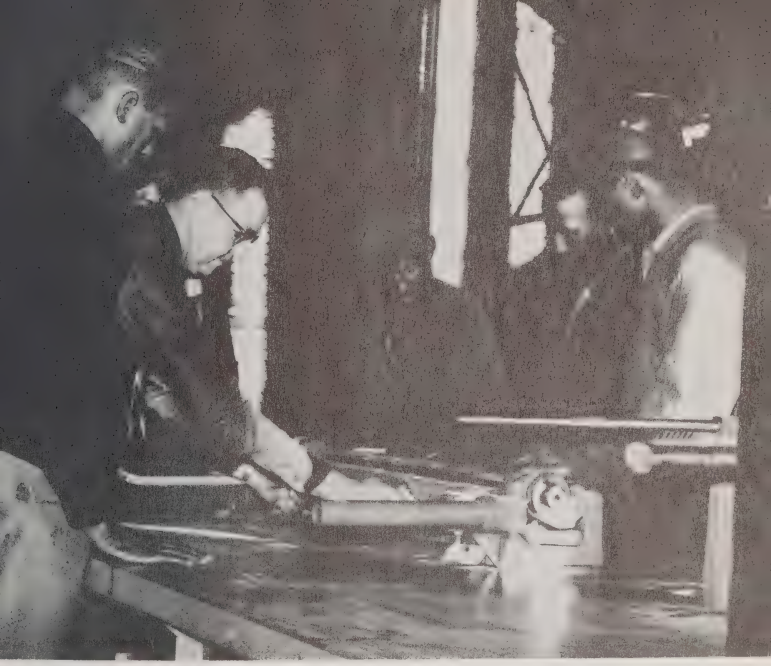
FOURTH QUARTER

PD—111 Interior Decorating 3 0 15 8
Principles of interior decorating are emphasized, with regard to paints and wall coverings, to achieve both an artistic and functional effect. Paint and wallpaper should produce the effect desired by the employer with relation to furniture, draperies, and floor coverings.

PD—110 Estimating 5 0 2 6
Problems in estimating, labor, and material in figuring small and large jobs.

SOC—103 Business Management 3 0 0 3
Development of procedures to familiarize the prospective businessman with the many important functions that must be carried on in the operations of a small business or enterprise. An introduction to the business world; problems of small business operation; basic business law, forms, and records; financial, ordering, and inventory problems; layout of equipment and offices; and methods of improving business and employer-employee relations.

Elective 3 0 0 3
An elective should be selected by the student that will contribute to his being a better craftsman.



SHEET METAL MECHANICS

SHEET METAL MECHANICS

PURPOSE OF CURRICULUM

Recent surveys by industrial and governmental agencies in North Carolina have shown a marked shortage of apprentices and other trainees in many trades. This shortage is notably true in the sheet metal trade.

To meet the training needs of those planning to enter or who have already entered this trade, this curriculum guide has been prepared. It is hoped that the curriculum outlined in the guide will provide that valuable background of technical information so greatly needed by each tradesman. It has been assumed that the time allotted to trade practices will hardly do more than acquaint the student with skills and standard practices of the trade. The variety of skilled operations and trade activities to which the student will be exposed should prove most valuable as he enters the trade. Practice in the trade with repetition of the activities learned will serve to fix and improve these skills.

The training processes outlined are not intended to replace the apprenticeship, but rather to provide industry with men ready to learn and with the background to become skilled sheet metal craftsmen. It is believed that this training should provide the enriched trade training program needed in modern industry.

JOB DESCRIPTION AND REQUIREMENTS

The graduate of the Sheet Metal Mechanics trade program will be qualified to enter the sheet metal trade as an on-the-job trainee, or apprentice, where he will assist in the planning, layout, installation, and checkout of systems in residential, commercial, or industrial plants.

Sheet metal workers fabricate and install ducts which are used in ventilating, air conditioning, and heating systems. They also fabricate and install a wide variety of other products made from their metal sheets, such as roofing and siding, commercial stainless steel kitchen equipment, partitions, sheet metal shelves in industrial establishments, store fronts, metal framework for neon signs, and chutes used for materials movement.

Union minimum hourly wage rates for sheet metal workers averaged $3.90. Among individual cities surveyed by the U.S. Department of Labor, the minimum hourly rates for sheet metal mechanics ranged from $3.10 in Charlotte, N. C., to $4.65 in New York, N.Y.

SUGGESTED CURRICULUM BY QUARTERS

FIRST QUARTER — COURSE TITLE	C	L	SP	CH
Mathematics I	5	0	0	5
Drafting I	2	0	3	3
Sheet Metal Practice I	2	0	3	3
Applied Science	1	0	9	4
	10	0	16	15
SECOND QUARTER				
Drafting II	2	0	0	2
Sheet Metal Practice II	1	0	9	4
SOC—101 Human Relations	2	0	0	2
Blue Print Reading	2	0	0	2
WELD—120 Welding (Acetylene)	3	0	9	6
	9	0	18	16

THIRD QUARTER				
WELD—111 Arc Welding	2	0	6	5
Management Procedures	3	0	0	3
Sheet Metal Practice III	1	0	9	4
Estimating	5	0	0	5
	11	0	15	17

COURSE DESCRIPTION BY QUARTERS

FIRST QUARTER	C	L	SP	CH
Mathematics I	5	0	0	5

A review of the fundamentals of mathematics, and an understanding of the trade applications of mathematics. The course includes a review of whole numbers, fractions, powers and roots, and percentages; vocational finance, the use of rules and formulas, and the ratio and proportion; and study with practice in the various forms of direct measurement.

Drafting I	2	0	3	3

An introduction to the scope, place, and practices of drafting in the sheet metal industry. The student will be given an overall picture of the usage of drafting in sheet metal work, instruction and practice, instruction and practice in geometric construction, instruction and practice in the fundamentals of orthographic projection, and basic instruction in floor plans and elevations of simple buildings.

Sheet Metal Practice I	2	0	3	3

An introduction to the scope, history, requirements, and employment opportunities in the industry. The student will become acquainted with the materials of the trade, the basic hand tools and machines for familiarization. Each person will be given practice in making flashing and termite shields, and will receive instruction as to their installation. Practice in soft soldering is an integral part of the course.

Applied Science	1	0	9	4

An introductory course in physics and its applications in the field of Air Conditioning and Refrigeration. It will cover systems of measurements, properties of liquids, solids and gases, temperatures, basic machines, and friction. Related areas such as oxidation and reduction, reactions, acids, bases and salts will also be studied. Experiments and laboratory exercises will be utilized and integrated with the theory and classroom assignments.

SECOND QUARTER				
Drafting II	2	0	0	2

The second drafting course will be concerned primarily with the use, production, and function of auxiliary views and rotations as they are used in the sheet metal trade. Practice will be given in their usage both for shape description and to determine true lengths or sizes for pattern layout of angular, rectangular, and radial fittings or objects.

Sheet Metal Practice II	1	0	9	4

Sheet metal practice II will consist of development of patterns, and fabrication of the developed patterns. Parallel line development for rectangular pan, rectangular duct, duct elbow (plain, reducing, and transitional), duct offsets, stretchout of a cylinder, pipe intersections of all types, round to

oblong transitions, and cornice and gutter stretchout patterns will be featured. Radial-line development will be started and carried through straight and offset cones, and conical transitions between parallel surfaces. All work will be laid out in patterns and formed up out of galvanized iron of standard industrial gages, various fastening devices, such as spot welding, metal screws and riveting, will be used in the fabrication of projects.

SOC—101 Human Relations 2 0 0 2

Development of understanding of relationships to other persons through some of the basic principles of human psychology. The problems of the individual and his work situation are studied in relation to the established organization of modern business and industry, and in relation to government practices and labor organizations, with special emphasis on the operating responsibilities of good management.

Blue Print Reading 2 0 0 2

A correlation or pulling together of the previous drafting course into the reading of building prints and conditioning layouts for the take-off of sheet metal work. Shop sketches will be prepared of each take-off. Examples of take-offs will be flashing, termite shields, ductwork, cornices, louvres, skylights, hoods, canopies, laundry chutes, etc.

Because of the specialized nature of the course no text will be used. The lessons will be group efforts, and the materials will be current prints from the construction industry.

WELD—120 Acetylene Welding 3 0 9 6

Introduction the history of oxyacetylene Welding, the principles of welding and cutting nomenclature of the equipment, assembly of units. Welding procedures such as practice of puddling and carrying the puddle, running flatbeads, butt welding in the flat, certical and overhead position brazing, hard and soft soldering. Safety procedures are stressed throughout the program of instruction.

THIRD QUARTER

WELD III—Arc Welding 2 0 6 5

The operation of A.C. transformers and D.C. motor generator arc welding equipment. Studies are made of amphere settings, polaraties and electrode selection. After the student is capable of running beads, butts, and fillet welds in all positions, he is tested in order that he may evaluate his work. Safety procedures are emphasized throughout the course.

Management Procedures 3 0 0 3

This course is a study of source of the economic and social fundamentals of the private enterprise system and our modern industrial structure. The responsibilities and procedures for organizing personnel controlling production and planning distribution, as a function of management, will be examined closely to give the student an appreciation of the magnitude of this function.

Sheet Metal Practice III 1 0 9 4

Radial line development including conical reducing elbows, intersection of cones, double curved surfaces, and pyramids will be completed. The major portion of the time will be devoted to development and fabrication of fittings involving triangulation in layout. Typical project will be rectangular-to-rectangular twists, transitions of all types, transitional elbows, and branch fittings. All work will be laid out in patterns for typical fittings, and spot-welds, as well as standard seams, will be used. Practice will also be given in the making and use of "S" locks, drive locks, and standing seam slip joints.

Estimating 5 0 0 5

Development of an understanding of principles involved in estimating labor, time, and materials needed for determining a cost of a job, or combination of jobs.

PLUMBING

PLUMBING

PURPOSE OF CURRICULUM

This curriculum is designed to prepare students to enter the field of plumbing. Each course is prepared to enable an individual to advance rapidly in the trade upon entering the field of work. Courses are arranged in sequence to develop plumbing skills and proficiency in related areas vital to the training of plumbers.

The plumber associates with many levels of personnel — administrative, draftsmen, engineers, skilled workers — and must be able to communicate effectively with them. Courses to develop knowledge and skills in communication, human relations, economics and management procedures, are provided to assist the student in developing understandings and confidence in his relations with others.

JOB DESCRIPTION

Plumbers are craftsmen who install pipe systems which carry water, steam, air, or other liquids or gases needed for sanitation, industrial production, or other uses. They also alter and repair existing pipe systems, and install plumbing fixtures, appliances, and heating and refrigeration circuits.

Plumbers use a variety of skills when installing pipe systems. For example, they bend pipe and make welded, brazed, calked, soldered, or threaded joints. After a pipe system is installed, the plumber tests for leaks by filling the pipes with liquid or gas under pressure.

EARNING AND EMPLOYMENT OUTLOOK

Employment of plumbers is expected to rise rapidly over the 1960-70 decade. This rapid increase in job opportunities is contributed to the rapid rise in construction activities locally and nationally.

Plumbing is expected to become more important in many types of construction. For example, the trend toward more bathrooms per dwelling unit is likely to continue. The installation of appliances, such as washing machines and waste disposals, which require plumbing work, will become more widespread.

Hourly wage rates for plumbers are among the highest in the skilled building trades, with minimum hourly wage rates for plumbers averaging $4.00 per hour. In Charlotte, N. C., plumber wage rates in 1960 was $3.25, per hour.

SUGGESTED CURRICULUM BY QUARTERS

FIRST QUARTER	COURSE TITLE	C	L	SP	CH
ENG—101	Reading Improvement	2	0	0	2
MA —125	Math for Plumbers	5	0	0	5
	Plumbing I	5	0	10	9
		12	0	10	16
SECOND QUARTER					
	Estimating (Plumbing)	3	0	0	3
SOC—101	Human Relations	1	0	0	1
DD —120	Blue Print Reading	5	0	0	5
	Plumbing II (Theory & Practice	5	0	10	9
		14	0	10	18

THIRD QUARTER					
SOC—130	Management Procedure	3	0	0	3
	Plumbing III (Theory and Practice)	5	0	10	9
	Heating (Hot Water Systems)	3	0	0	3
	Welding (Arc and Acetylene)	3	0	5	5
		14	0	15	20

COURSE DESCRIPTION BY QUARTERS

FIRST QUARTER

ENG—101 Reading Improvement 2 0 0 2

A concentrated effort to improve the student's ability to comprehend what he reads by training him to read more rapidly and accurately. Special machines are used for class drill to broaden the span of recognition, to increase eye coordination and word group recognition, and to train for comprehension in larger units. Reading faults of the individual, and principles of vocabulary building are stressed.

Prerequisite: None.

MA—125 Plumbing Math 5 0 0 5

A study of fundamental concepts of algebra; basic operations of addition, subtraction, multiplication, and division; solutions of first order equations, ratio and proportions, as they relate to the plumbing trade.

Plumbing I (Practice and Theory) 5 0 10 9

Introduction to the trade, tools and materials used in the trade, and concepts and principles of the design and installation of both private and municipal drainage and sewage systems.

SECOND QUARTER

Estimating (Plumbing Trade) 3 0 0 3

Concentrated effort is made to develop the student's ability to estimate material and labor needed for a particular job.

SOC—101 Human Relations 1 0 0 1

Assistance in acquiring great understanding of relations with others through learning and applying some of the basic principles of human psychology. A study of the problems of the individual and his work situation in relation to the established organization of modern business and industry, and in relation to government practice and labor organizations, with special emphasis on the operating responsibilities of good management.

DD—120 Blue Print Reading 5 0 0 5

Principles of interpreting blue prints and trade specifications common to the building trade. Development of proficiency in making three-view drawings and pictorial sketches.

Plumbing II (Theory and Practice) 5 0 10 9

Principles involved are ventilation, soil, waste, and vent pipes; water supply; inspection and tests, joints on water supply systems, and cold water distribution systems.

THIRD QUARTER

SOC—130 Management Procedures 3 0 0 3

An introduction to the business world, problems of small business operation, basic business law, business forms and records, financial problems, ordering and inventorying, layout of equipment and offices, methods of improving business, and employer-employee relations.

Plumbing III (Theory and Practice) 5 0 10 9
Emphasis is placed on domestic hot-water supply and systems, private water connection systems, plumbing fixtures, and pumps and lifts in rural water systems.

Heating (Hot water Systems) 3 0 0 3
Principles in design and installation of hot water heating systems.

Welding (Arc and Acetylene) 3 0 5 5
Welding is demonstrated by the instructor and practice is done by the students in the welding shop. Safe and correct methods of assembling and operating welding equipment, including arc welding and acetylene welding is demonstrated and practiced.

CARPENTRY

CARPENTRY

PURPOSE OF CURRICULUM

This curriculum provides a one-year training program for the instruction of students in the basic knowledge and skills involved in the use of hand and power tools, in commercial and residential types of construction, and related trades. Stress is laid on good work habits in acquiring both skill and craftsmanship. (Good working relationships with members of related trades are also stressed.) Students will be presented a variety of experiences and problems such as are encountered in the trade.

Along with other construction type jobs, the carpentry field is facing a critical shortage of skilled craftsmen. The ever increasing volume of construction is creating more job opportunities than can be filled with qualified young men. This presents a wonderful opportunity to those individuals willing to apply themselves and learn the trade.

The construction industry, directly and indirectly, employs 15 per cent of the U.S. labor force. Construction is America's largest industry and is a major contributor to our national economy. The construction industry is, in addition, a vital component of our national defense.

This course of study was developed to enable students to learn the basic principles necessary to become a carpenter. It is anticipated, however, that some on-the-job experience as a carpenter will be necessary before full development of skills takes place.

JOB DESCRIPTION

The carpenter will generally perform general work involved in erecting wooden building frames, installing exterior and interior trim, laying floors, building concrete forms, pouring chutes, wooden scaffolds, and similar work requiring the cutting, shaping, and fastening together of wood or material, such as fiberboard, that is treated and used the same as wood.

ENTRANCE REQUIREMENTS

The applicant must have completed the tenth grade or must establish the equivalency as to quality and quantity of achievement in education. He must score acceptably on the General Aptitude Test Battery administered by the Employment Security Commission of North Carolina or other acceptable test instruments and must show an ernest desire to enter the subject field. An applicant may be tested by the Center in such areas as native ability, interest patterns, aptitudes, and traits as the Center finds need.

SUGGESTED CURRICULUM BY QUARTERS

FIRST QUARTER	COURSE TITLE	C	SP	CH
CA	—121 Hand Tools & Shop Procedures	5	10	8
MA	—111 Math for Carpenters	5	0	5
ENG	—101 Reading Improvement	2	0	2
DD	—120 Building Trade and Blue Print Reading	5	0	5
		17	10	20
SECOND QUARTER				
CA	—123 Power Tools, Use & Care	5	10	8
MA	—124 Algebra	5	0	5
ENG	—102 Communication Skills	2	0	2
DD	—121 Blue Print Reading & Sketching	5	0	5
		17	10	20

THIRD QUARTER			
CA —124 House Construction Measurements	5	10	8
MA —121 Applied Geometry	3	0	3
CA —130 Materials of Construction	3	2	4
	11	12	15
FOURTH QUARTER			
CA —125 Structural Carpentry (Residential)	2	39	15
	2	39	15

COURSE DESCRIPTION BY QUARTERS

FIRST QUARTER C SP CH

CA—121 Hand Tools & Shop Practice 5 10 8

The student is oriented to shop theory and safe practices in the handling of tools and materials. Use and care of basic hand tools is stressed to develop skill in layout and making of joints, squaring mitering, and standard measuring devices.

MA—111 Math for Carpenters 5 0 5

A review of fundamental arithmetic operations with special trade applications; common and decimal fractions; decimal equivalents, and percentage.

ENG—101 Reading Improvement 2 0 2

A concentrated effort to improve the student's ability to comprehend what he reads by training him to read more rapidly and accurately. Special machines are used for class drill to broaden the span of recognition, to increase eye coordination and word group recognition, and to train for comprehension in larger units. Reading faults of the individual are analyzed for improvement, and principles of vocabulary building are stressed.

DD—120 Building Trade and Blue Print Reading 5 0 5

Principles of interpreting blue prints and trade specifications common to the building trades. Development of proficiency in making three view and pictorial sketches.

SECOND QUARTER

CA—123 Power Tools, Use & Care 5 10 8

The student is introduced to the use of power tools, emphasizing safe practices and proper maintenance of the various standard tools used in the trade. Practice with the power tools in making various projects is stressed during the course.

MA—124 Algebra 5 0 5

Basic concepts and operations of algebra: historical background of our base-10 number system; algebraic operations: addition, subtraction, multiplication and division; fractions, letter representation, grouping, factoring, ratio and proportions, variation; graphical and algebraic solution of first degree equations.

ENG—102 Communication Skills 2 0 2

Development of ability to communicate effectively through the medium of good language usage in speaking and writing. Organizing thoughts, and presenting thoughts effectively in connection with problems.

DD—121 Blue Print Reading and Sketching 5 0 5

Development of the student's understanding and practical reading skill of both residential and commercial prints with practice in material ttakeffs, shop detail sketches and recognition of related trade areas.

THIRD QUARTER

CA—124 House Construction Measurements 5 10 8

Introduction to the basic parts of a house: framing, sills, joists, rafters, sheathing, subflooring and roof covering. Standard measurement practices are stressed.

MA—121 Applied Geometry 3 0 3

Geometric forms and construction; applied problems in surface and volume computation.

CA—130 Materials of Construction 3 2 4

A study of the materials used in the construction trade, with emphasis on feasibility, strength, durability, availability, and cost.

FOURTH QUARTER

CA—125 Structural Carpentry (Res.) I 2 39 15

During this quarter all students will be placed on a job, as a carpenter's helper. Two hours per week will be devoted to classroom instruction relative to problems encountered from work experience. The instructor will visit and supervise students on the job and plan experiences needed to reach objectives of the program.

PRACTICAL NURSE EDUCATION

PRACTICAL NURSE EDUCATION

The accelerated growth of population in North Carolina and the rapid advancement in medical technology demand an increased number of well-trained personnel for health services. Realizing this need, the State Department of Community Colleges, in conjunction with local hospitals, administers programs of practical nurse education in local communities and in the industrial education centers throughout the State.

The aim of the Practical Nurse Education Program is to make available to qualified persons the opportunity to prepare for participation in care of patients of all ages, in various stages of dependency, and with a variety of illness conditions.

Students are selected on the basis of demonstrated aptitude for nursing as determined by pre-entrance tests, interviews with faculty members, high school record, character references, and reports of medical and dental examination.

Throughout the one-year program the student is expected to grow continuously in acquisition of knowledge and understandings related to nursing, the biological sciences, the social sciences and in the skills related to nursing practice, communications, interpersonal relations, and the use of good judgment. Evaluation of student performance consists of tests on all phases of course content, evaluation of clinical performance, and evaluation of adjustment to the responsibilities of nursing. A passing score is required on all graded work, plus demonstrated progress in the application of nursing skills to actual patient care.

Graduates of accredited programs of practical nurse education are eligible to take the licensing examination given by the North Carolina Board of Nurse Registration and Nursing Education, Enlarge. This examination is given twice a year, usually in April and September. A passing score entitles the individual to receive a license and to use the legal title "Licensed Practical Nurse". The license must be renewed annually. The Licensed Practical Nurse can apply for licensure in other states on the basis of a satisfactory examination score, without repeating the examination.

The LPN is prepared to function in a variety of situations: Hospitals of all types, nursing homes, clinics, doctors' and dentists' offices and, in some localities, public health facilities. In all situations the LPN functions under the supervision of a registered nurse and/or licensed physician. The supervision may be minimal in situations where the patient's condition is stable and not complex; or it may consist of continuous direction in situations requiring the knowledge and skills of the registered nurse or physician. In the later situation, the LPN may function in an assisting role in order to avoid assuming responsibility beyond that for which the one-year program can prepare the individual.

Job requirements for the Licensed Practical Nurse include suitable personal characteristics, ability to adapt knowledge and understandings of nursing principles to a variety of situations, technical skills for the performance of bedside nursing, appreciation for the differences of people and for the worth of every individual, a desire to serve and help others, and readiness to conform to the requirements of nursing ethics and hospital policies.

The practical nurse education program is a terminal program. It neither prepares the individual for a degree nor for transfer to a professional nurs-

ing course. There are, however, post-graduate courses open to the LPN who wishes to specialize in one particular area of nursing, such as Operating Room Technique, Advanced Medical-Surgical Nursing, and Rehabilitation Techniques.

PRACTICAL NURSE EDUCATION

OBJECTIVES: To offer the beginning student in practical nursing the opportunity to acquire basic knowledge from nursing and from realted areas of learning and to begin to develop skills needed for safe and effective bedside care of patients whose health diviation has created a state of dependency in matters of daily living.

COURSE MATERIAL:

Nursing—History
Introduction to patient care
Administration of medicines

Health —Personal, physical and mental
Family
Community

Basic Science—Body structure and function
Bacteriology
Basic nutrition

Vocational Adjustments—Introduction to ethics
Introduction to legal aspects of nursing

Communications in Human Relations

Classroom activities are planned to assist the student in the development of knowledge, understanding, appreciations, and the attitudes basic to effective nursing of patients of all ages and backgrounds with nursing needs arising both from the individuality of the patient and from inability for self-care as a result of a health deviation. The student is encouraged to develop beginning skills in analysis of patient needs, both through classroom study of hypothetical patient situations and through planned patient experiences in the clinical environment. Beginning skills in nursing methods are developed through planned laboratory experieces, followed by related practice in actual patient care.

Clinical activities provide introduction to actual patient care through selected clinical assignments requiring the application of current classroom and laboratory learnings.

COURSE HOURS: This curriculum has been developed for a 360-hour teaching period.* It may be offered on a basis of 30 hours per five-day week, six hours daily, for 12 weeks.

PREREQUISITE: Admission to a Program of Practical Nurse Education approved by the North Carolina Department of Community Colleges and/or accredited by the North Carolina Board of Nurse Registration and Nursing Education, Enlarged.

* Minimum requirements of the North Carolina Board of Nurse Registration and Nursing Education, Enlarged, hereafter referred to as the Nursing Board.

PRACTICAL NURSING II:
CARE OF PATIENTS WITH MEDICAL–SURGICAL CONDITIONS

OBJECTIVES: To offer the practical nursing student opportunities to acquire the basic knowledge and understanding and to further develop the skills needed for rendering safe and effective nursing care to adolescent and adult patients with common illness conditions requiring medical and/or surgical treatment.

COURSE MATERIAL: Medical-Surgical Nursing—Patient care
Diet therapy
Medications
Emergency and Disaster Nursing
Communications and Human Relations

Classroom activities center around analysis of nursing needs arising from the illness and/or surgical procedure, as viewed in perspective with the needs arising from the individuality of the patient. Related information is presented as it is relevant to the student's understanding of and ability to meet nursing needs of patients.

Clinical activities provide selected experiences in patient care in order for the student to develop skill in applying classroom learnings to a variety of patient situations.

COURSE HOURS: This curriculum has been developed for a 920-hour teaching period and may be offered on a basis of 40 hours per five-day week, eight hours daily, for 23 weeks. *The course must include 125 class hours and 20 weeks of clinical practice.

PREREQUISITE: Practical Nursing I.

PRACTICAL NURSING III:
CARE OF THE MATERNITY PATIENT AND NEWBORN INFANT

OBJECTIVES: To offer the practical nursing student opportunities to acquire basic knowledge of pregnancy, labor and delivery, the puerperium, and the neonatal period and to develop beginning skills in rendering safe and effective nursing care to maternity patients and newborn infants.

COURSE MATERIAL: Principles of Obstetrical Nursign
Nutrition in Pregnancy and Infancy
Medications
Communications anl Human Relations

Classroom activities center around analysis of nursing needs of the antepartum and post-partum patients and the normal new-born infant. Basic knowledge of obstetrics and related areas is presented as it is relevant to the student's ability to function effectively in recognizing and meeting patient needs.

Clinical activities consist of guided experiences in nursing maternity patients and newborn infants and is planned to parallel classroom learnings.

COURSE HOURS: This curriculum has been developed for a 240-hour teaching period. It man be offered on a basis of 40 hours per five-day week, eight hours daily, for six weeks. *The course must include a minimum of 30 class hours and four weeks of clinical practice.

PREREQUISITE: Practical Nursing I.

PRACTICAL NURSING IV: CARE OF THE SICK CHILD

OBJECTIVES: To offer the practical nursing student opportunities to acquire basic knowledge concerning the needs of normal, healthy children, the effects of illness on children, and the nursing needs of children of all ages with a variety of common illnesses and to develop beginning skills in recognizing and meeting the nursing needs of the hospitalized child.

COURSE MATERIAL: Growth and development
Principles from Pediatric Nursing
Medications
Nutrition and Diet therapy

Classroom activities center around the needs of children of all ages, the effects of illness on the needs of the child, and the nursing principles to be applied to the care of the sick child.

Clinical activities consist of guided experiences in the care of children with a variety of common illness conditions requiring medical and/or surgical treatment and is planned to parallel classroom learnings whenever possible.

COURSE HOURS: This curriculum has been developed for a 240-hour teaching period. It may be offered on a basis of 40 hours per five-day week, eight hours daily, for six weeks. *The course must include a minimum of 30 class hours and four to six weeks of clinical experience.

PREREQUISITE: Practical Nursing I.

PRACTICAL NURSING V: VOCATIONAL ADJUSTMENTS FOR THE PRACTICAL NURSE

OBJECTIVES: To offer the advanced practical nursing student opportunities to prepare for the transition from the student role to that of Graduate Practical Nurse.

COURSE MATERIAL: Vocational Adjustments—Nursing ethics
Legal aspects of nursing
Nursing organizations
Job Relations

Classroom activities center around experiences designed to promote appreciation for the attitudes and behaviors which will assist the student to adapt to the role of Graduate Practical Nurse and to the expectations of the employing agency.

COURSE HOURS: This curriculum has been developed for a 40-hour teaching period. The hours may be scheduled at the teacher's discretion during the last four weeks of the nursing program. *The course must include a minimum of 15 class hours.

PREREQUISITES: Practical Nursing I, II, III, and IV.

* Minimum required by the Nursing Board.

SHORT TERM PROGRAMS

AUCTIONEERING

Auctioneering offers a pleasant and profitable profession. The work is enjoyable, the hours are short, the pay sure. It demands no capital. It confines you to no one city or state. It limits income only to the extent of one's energy and ambition.

Auctioneering requires only an understanding of modern selling methods and the ability to publicly put them into practice. It requires only that one be properly educated and trained in the rudiments of the profession. No other profession offers so much for so little.

The Pitt Industrial Education Center offers effective instruction and expert training in the field of auctioneering, at a moderate cost.

Training will include:

Tobacco Auctioneering
Merchandise Sales
Farm Sales
Auction Houses
Household Sales
Auction Ethics
Advertising
Real Estate Laws
Real Estate Titles
Real Estate Contracts
Taxes and Accounting
Tobacco Sales
Estate Liquidations
Real Estate Sales
Livestock Judging
Livestock Ages and Diseases
Public Speaking
Pedigree Study
Machinery Sales
Livestock Sales
Registered Livestock Sales
Auction Licenses and Laws
Auction Sale Financing
Automobile Sales
Business Liquidations
Plus—Other Related Subjects

Instruction in the following:

How to call bids
What to say when opening a sale
How to favorably impress the audience
How to use the public address system
Public speaking
How to get business
How to overcome stage fright
Rythm in your chant
How to remember names
How to start the bidding
Salesmanship
When is the best time to sell
How to protect property
How to advertise sales
Speech and voice
Variety of tones
How to get started in the auction business
Related Subjects

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COST AND LENGTH OF PROGRAM

(1) Tuition—$14.00, plus a supply fee of approximately $3.00.
(2) The complete course lasts four weeks, six hours per day, five days per week.
(3) Only one class will be organized each year — this being the first week in February, of each year.

INTRODUCTION — TH

- Use of Manual
- Teaching Time

TIE C/O 6-1 — FORCIBLE ENTRY — 9 Hours

- Purpose
- Aim
- Definition
- Outline of Instruction
  - I. Terms used in the building trade
  - II. Conditions requiring forcible entry
  - III. Forcible entry tools
  - IV. Doors
  - V. Windows
  - VI. Roofs
  - VII. Using and caring for a fireman's axe
  - VIII. Floors
  - IX. Exterior Walls, Partitions and Ceilings
- References

TIE C/O 6-2 — ROPE PRACTICES — 9 Hours

- Purpose
- Aim
- Outline of Instruction
  - I. Ropes
  - II. Tying knots and hitches
  - III. Hoisting tools and equipment
  - IV. Miscellaneous uses of rope
  - V. Coiling the handline and lifeline
  - VI. Crowning and splicing rope
  - VII. Tips for care and use of ropes
- References

TIE C/O 6-3 — PORTABLE FIRE EXTINGUISHERS — 9 Hours

- Purpose
- Aim
- Definition
- Outline of Instruction
  - I. Fire triangle
  - II. Classification of fires
  - III. Classification of fire extinguishers
  - IV. Distribution of extinguisher units
  - V. Using portable extinguishers
  - VI. Special extinguishing agents
- References

TIE C/O — LADDER PRACTICES — 9 Hours

- Purpose and Scope
- Aim
- Outline of Instruction
  - I. Introduction to ladders
  - II. Handling ladders
  - III. Special ladder operations
  - IV. Care of ladders
- References

TIE C/O 6-5 — HOSE PRACTICES 12 Hours

Purpose and Scope

Aim

Outline of Instruction

I. History of fire hose
II. Types of hose commonly used
III. Sizes of hose
IV. Care of fire hose
V. Fire hose couplings
VI. Fire hose nozzles
VII. Fire hose adapters
VIII. Fire hose tools and accessories
IX. Hose rolls and hose connections
X. Fire hose carries and drags
XI. Hose layouts, loading and advancing fire hose
XII. Feeding private protection devices and special appliances.
XIII. Testing fire hose
XIV. Hose inspection records

References

TIE C/O 6-6 — SALVAGE AND OVERHAUL PRACTICES 9 Hours

Section One — Salvage Practices

Purpose

Aim

Outline of Instruction

I. Definition of salvage
II. Responsibility of the fire department
III. Value in public relations
IV. Salvage equipment
V. Care and preparation of salvage covers
VI. Methods of folding salvage covers
VII. Methods of spreading salvage covers
VIII. Arranging materials to be covered
IX. Removal of water from buildings
X. Restoring the premises
XI. Testing salvage covers

Section Two — Overhaul Practices

Purpose and Scope

Aim

Outline of Instruction

I. Definition of overhaul
II. Value of proper overhaul
III. Overhaul equipment
IV. Searching for hidden fires
V. Extinguishing hidden fires
VI. Determining the cause of fire
VII. Recognizing and preserving evidence of arson
VIII. Making the building, contents and area safe
IX. Procedure for releasing the premises
X. Obtaining data for official report

References

TIE C/O 6-7 — FIRE STREAM PRACTICES 12 Hours

Purpose and Scope

Aim

Outline of Instruction

I. Fire streams
II. Extinguishing properties of water
III. Requirements for extinguishing a building fire
IV. Types of fire streams
V. Characteristics of good fire streams
VI. Terms, abbreviations, symbols, and measurements
VII. Producing solid streams from handlines
VIII. Producing fog streams from handlines
IX. Friction loss table for small rubber-lined hose
X. Producing master streams
XI. Producing master streams table

References

TIE C/I 6-8 — FIRE APPARATUS PRACTICES 12 Hours

Purpose and Scope

Aim

Outline of Instruction

I. Fire apparatus requirements
II. Special mechanical features and functional equipment
III. The aerial ladder
IV. Procedures for caring for fire apparatus
V. Operation of pumpers (tables)
    A. Centrifugal pumps
    B. Positive displacement pumps

References

TIE C/O 6-9 — VENTILATION 9 Hours

Purpose

Aim

Outline of Instruction

I. Definition of ventilation
II. Advantages of proper ventilation
III. Phases of fire
IV. Complications in performing ventilation
V. Expectancy
VI. Responsibility upon firefighters
VII. Indications of existing conditions
VIII. Visible smoke conditions
IX. Heat conditions and fire severity
X. Providing adequate protection and ventilation
XI. Sizing up the situation
XII. Top or vertical ventilation
XIII. Cross or horizontal ventilation
XIV. Application of fog as an aid to ventilation
XV. Forced ventilation
XVI. Precautions during ventilation practices

References

TIE C/O 6-10 — RESCUE PRACTICES 12 HOURS

Purpose and Scope

Aim

Outline of Instruction

I. Primary functions
II. Secondary functions
III. Incidents and situations involving rescue work
IV. Personal protection requirements
V. Rescue procedure
VI. Rescue practices and techniques

References

TIE C/O 6-11 — PROTECTIVE BREATHING EQUIPMENT 9 Hours

Purpose

Aim

Outline of Instruction

I. Purpose of breathing equipment
II. Types of breathing equipment
III. Self-contained oxygen-generating breathing equipment "Chemox"
IV. Self-contained demand regulator breathing equipment
V. Self-contained oxygen-rebreathing equipment
VI. Filter type breathing equipment
VII. Supplied-air type breathing equipment

References

TIE C/O 6-12 — FIREFIGHTING PROCEDURES 12 Hours

Purpose and Scope

Aim

Definition

Outline of Instruction

I. Alarm response and visual anticipation
II. Arrival and size-up
III. Attack, confine and extinguish
IV. Overhaul and return to quarters

References

TOBACCO TICKET MARKING SCHOOL

Every tobacco sale requires an expertly-trained ticket marker to follow the sales. In this occupation accuracy is the key word. There are numerous warehouses in the tobacco belt. Warehousemen have expressed a desire for well-trained tobacco ticket markers. To meet this demand, the Pitt Industrial Education Center is offering one hundred hours of instruction annually, to persons interested in training for this occupation.
This course is offered in conjunction with the auctioneering programs so as to provide an environment similar to working conditions of a ticket marker.

COST AND LENGTH OF PROGRAM

(1) Tuition—$12.00, plus a supply fee of approximately $3.00.
(2) The complete course will operate for four weeks, five hours per day, for five days per week.
(3) Only one class will be organized each year—this being the first week in February, of each year.

FARRIERING

(HORSESHOEING)

FARRIERING (HORSESHOEING)

Horseshoeing is an art that is in great demand today because of the rapid increase in the number of sports horses in the United States. There are more saddle horses in the United States today than in any other period in history. While the horse population is rapidly increasing, the number of qualified horseshoers is decreasing. The old masters of the trade are dying out.

The Pitt Technical institute, having been approached by people from the horse trade, investigated the problem and it was determined there is a need for the training of people in this area.

The demand for trained people in all phases of specialized horseshoeing is great. The number of times an individual horse has to be shod in one given year adds to the demand for trained people in this area. The one area of specialized shoeing for race horses has a large demand for trained people, and when you add the other types of horses requiring special shoeing the demand greatly increases.

LENGTH OF PROGRAM: THREE MONTHS

Four, twelve week courses will conducted per year.
Classes will meet 6 hours daily, Monday through Friday.

This course deals with the anatomy and physiology of a horse's foot, pastern and legs; as well as the foot and leg in relation to the entire body. Other areas of study include the lines of flight of hoofs in motion, influence of weight upon lines of flight of hoofs, growth of the hoof, and wear of the hoof and shoe. Covered also are the types of correction shoeing and common errors in shoeing and their effect on the foot and leg structure; therefore the course actually includes study of the whole field of horseshoeing of horses.

The major part of the student's time is spent in the laboratory actually working with forge tools, frozen horses feet and live horses, using forges, tools, trimming feet, shaping and fitting shoes, and making shoes from bar iron are only a few of the skills a student performs in his lab work.

The Institute has an optional policy about basic tools. Some students prefer to purchase their own basic tools at the beginning of the course so as to be familiar with their tools by the end of the course. (The Institute can assist students in obtaining basic tools at a reasonable price.)

Students who do not purchase their tools use tools provided by the Institute.

Tuition is $30.00 per twelve week course,
This does not include books.
Tuition is $30.00 per twelve week course.
This does not include textbooks.
Each student is also charged a $2.00 regis tration fee.

INDEX

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REQUEST FOR INFORMATION

Gentlemen:

Would you please send me additional information on the courses checked below:

- ☐ Radio and Television
- ☐ Agricultural Technology
- ☐ Automotive Mechanics
- ☐ Electronics Technology
- ☐ Architectural Drafting
- ☐ Machine Shop
- ☐ Plumbing
- ☐ Farriering
- ☐ Practical Nursing
- ☐ Electrical Installation and Maintenance
- ☐ Secretarial Science
- ☐ Masonry
- ☐ Carpentry
- ☐ Painting and Paperhanging
- ☐ Others_____
  (Please Indicate)

NAME _____

ADDRESS_____ PHONE _____