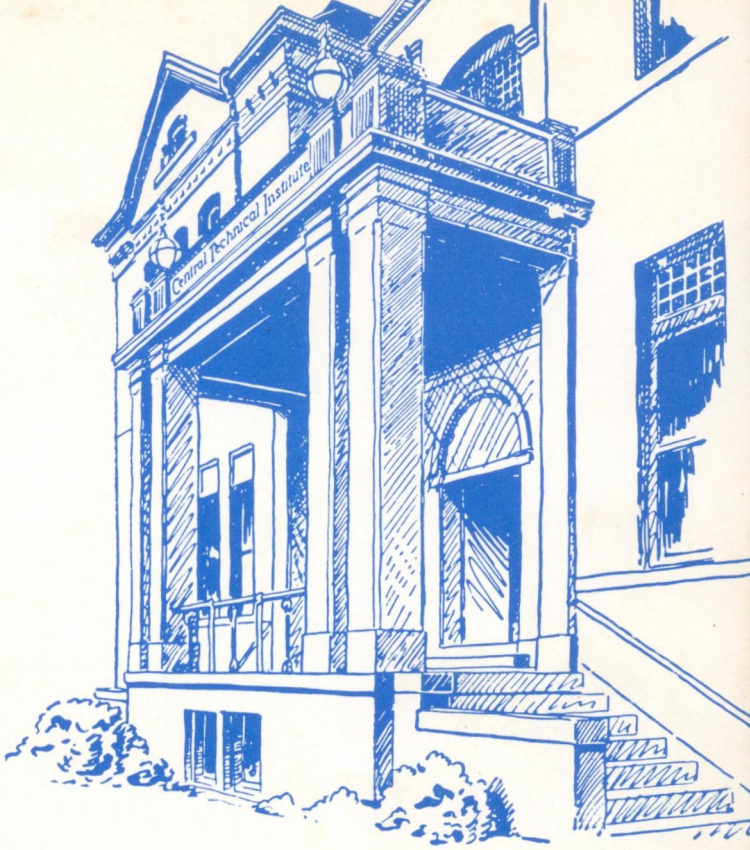
RADIO
TELEVISION
ELECTRONICS

AIRLINES



BULLETIN R

The 1958 Catalog of

Central Technical Institute

1644 Wyandotte Street Kansas City 8, Missouri

and

AFFILIATE SCHOOLS

California Air College
Los Angeles, California

Hartford Airline Personnel School
Hartford, Connecticut

Atlantic Airline and Electronic Schools, Ltd.
Windsor, Ontario

The main school building of Central Technical Institute is located at the corner of Seventeenth and Wyandotte Streets in Kansas City, Missouri.

Central Technical Institute reserves the right to revise at any time, without notice, any and all curricula stated herein. The right is also reserved to cancel any course, subject or class at any time because of insufficient registration or for other valid reason.

The Bulletin of

Central Technical Institute

Founded 1931

Training for Engineering Technicians in Electronics

and

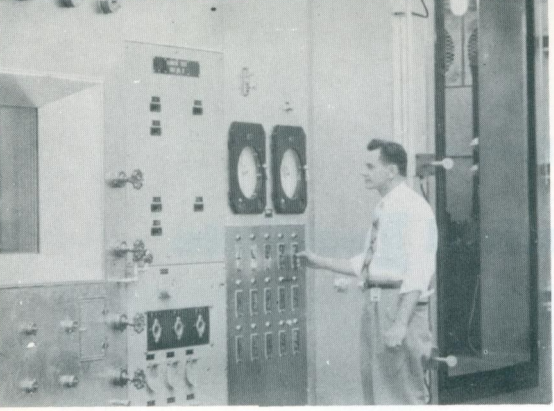
Training for Specialized Airline Personnel

★ **RESIDENT**

★ **HOME STUDY**

CATALOG WITH ANNOUNCEMENTS

Published by Central Technical Institute, Inc., 1644 Wyandotte St., Kansas City, Missouri. Central Technical Institute is organized as a proprietary, nontax-supported institution in the State of Missouri.



CAREER OPPORTUNITIES

Here a trained electronic technician operates the controls of a climate testing chamber.
—General Electric Company photo

In Electronics

Listed below are a few of the many career opportunity fields offered in the Electronics industry.

Radio
Television
Color TV
Electronic Labs
Guided Missiles
Atomic Energy
Radar
Automation
Seismograph Survey
Air Traffic Control
Navigation
Technical Drafting
Technical Writing
Aircraft Manufacturing
Commercial Aviation
U. S. Civil Service
Medical Electronics
Your Own Business

Over 50,000 Graduates Since 1931

Airline personnel enjoy the rewards of working at busy, exciting air terminals.
—Trans World Airlines photo

In Airlines

Central graduates are employed in all sections of the United States . . . as well as overseas . . . in career positions such as

Airline Station Agent
Airline Hostess (Stewardess)
Reservationist
Ticket Agent
Teletypist
Operations Agent
Reservations Service Agent
Radiophone Communicationist
Flight Steward
Passenger Service Agent
Tour Specialist
Air Freight Agent

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Automatic electronic systems are increasingly important to the airlines for recording and reporting flight reservations. Here a Central graduate adjusts the "brain" of a Teleregister device to conform with current flight schedules.

—National Airlines photo

Technical Institute Education

More fully stated, this would be: "Technical Institute *type* of Education," referring specifically to the intermediate strata of technological curricula, which are from one to three years duration *(full time)* beyond the high school level. Such curricula differ in both content and purpose from those of the vocational school on the one hand, and from those of the engineering college on the other. They emphasize the understanding of basic principles of mathematics and science rather than the acquisition of manual skills. High school graduation is required for admission, and mathematics through algebra is usually a pre-requisite.

The programs of instruction are similar in nature to, but briefer and more completely technical in context than, professional engineering curricula. The major purpose is to prepare individuals for various technical positions or specialized areas of activity encompassed within the broad field of engineering.

The Engineering Technician

In general, the engineering technician is a person whose interests and activities are directed chiefly toward the application and operation of engineering or scientific equipment or processes. Classified on the basis of educational certification, the engineering technician would be a graduate of a technical-institute type of curriculum *(see above)* as accredited by the Engineers' Council for Professional Development, or recognized equivalent. Classified occupationally, the engineering technician performs semi-professional functions of an engineering or scientific nature, largely on his own initiative under only general supervision of a professional engineer or scientist.

The Electronic Engineering Technician

An Electronic Engineering Technician is a person skilled in technical radio, television, and industrial electronic technology. He must possess specialized training in higher mathematics, advanced electronic theory and the physical sciences to enable him to fulfill successfully the more important positions above the routine operating, maintenance, and repair level. His semi-professional assignments usually require a *practical application* of his theoretical knowledge. He must have the ability to use sensitive laboratory apparatus such as oscilloscopes, signal generators, servo-mechanisms, computers, multitesters, Q-meters, etc., and combine his practical skills with theoretical knowledge to solve complex circuitry problems and apply standard testing procedures. Frequently, the Electronic Engineering Technician is employed in a laboratory where he assists professional engineers by constructing, testing, drafting, and under certain conditions, designing intricate electronic apparatus. Other employment opportunities are in radio and television broadcasting, transportations systems, aeronautical electronics, government Civil Service, etc.

Accreditation of Technical Institute Curricula

Institutions of higher learning *(college level)* with liberal arts programs are accredited by six regional accrediting associations. Some State departments of education and State universities also provide accrediting service for certain institutions and curricula. Professional and technical schools are accredited by a separate group of associations, of which approximately 26 are recognized by the U. S. Office of Education for listing in their Education Directory, part 3.

The Engineers' Council for Professional Development* is one of these accrediting associations, and Central Technical Institute's engineering technician curricula was first inspected and accredited by them in 1949. Presently, both resident and home study technical curricula offered by Central are accredited by the E.C.P.D. as engineering technician programs.

Public interest in "Accreditation" has resulted in a rapidly increasing number of organizations claiming accreditational jurisdiction over educational programs at the college level, numbering in the case of a full university something like 300 separate agencies. They range in quality and character all the way from those established and operated by nationally recognized organizations of professions — E.C.P.D. is an example in engineering — whose activities are recognized as legitimate and in the interest of establishing adequate professional standards, to proprietary organizations charging high fees and annual dues. Thus, it is important that "accrediting agencies" be evaluated carefully and qualitatively.

The General Council of the American Society for Engineering Education has officially resolved that ". . . *Technical Institutes which offer curricula accredited by the Engineers' Council for Professional Development are 'institutions of higher learning' and should be recognized as such.*"

*The Engineers' Council for Professional Development, a national accrediting body for engineering education is a conference organized through the cooperative efforts of the American Institute of Electrical Engineers, the American Society for Engineering Education, the American Society of Civil Engineers, the American Institute of Mining and Metallurgical Engineers, the American Society of Mechanical Engineers, the Engineering Institute of Canada, the American Institute of Chemical Engineers, the Institute of Radio Engineers, and the National Council of State Boards of Engineering Examiners.

What Is An Airline Personnel School?

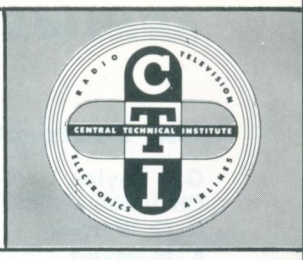
Specialized skills are required for most of the positions within the air transportation industry. Early in the industry's development the need for vocational preparation became important, as a contributory measure in achieving the present high standards of efficiency and safety which the commercial airlines have attained.

Just as the "Flight School" came into existence for the purpose of training pilots; so the "Airline Personnel School" emerged to provide training for traffic and operational personnel (including those for public contact positions).

Airlines are anxious to obtain well-trained employees to fill the openings which occur through expansion or turn-over. The graduate of an established Airline Personnel School customarily enjoys employment preference over the untrained applicant possessing equal personal qualifications. His training prior to employment reduces or eliminates the expense to his company, and the personal inconveniences to himself and his fellow workers of a lengthy period of on-the-job tutoring. He is able to more quickly assume the normal duties and responsibilities of his position, and in so doing his value as an employee is increased.

The feeling of competence and self-assurance on the job, and the avoidance of many of the untrained person's fears of inadequacy, are intangible advantages which are frequently commented on by Airline Personnel School graduates. In many cases, advanced standing in salary and promotion possibilities accrue to the advantage of the trained individual.

DIVISIONS OF THE INSTITUTE



Resident Technical Division

Basic, intermediate and advanced courses to prepare young men for the many electronic engineering technical occupations in industrial electronics, broadcasting, Civil Service, receiver servicing, etc.

Resident Airline Division

Specialized, intensive courses to prepare young men and women for airline career positions of a non-technical nature.

Home Study Division

Nationally recognized electronic and airline training courses for those unable to attend resident classes, and 'combination' courses whereby a portion of a program may be taken by correspondence and completed in resident school.

Evening Division

Serving the needs of employed adults for evening electronic courses in the metropolitan community served by the Institute.

California Air College

A West Coast branch offering resident airline and electronics courses, and providing terminal-resident training for airline home study students. 6472 Santa Monica Boulevard, Hollywood 28, California.

Hartford Airline Personnel School

An East Coast branch offering resident airline courses, and providing terminal-resident training for airline home study students. 197 Asylum Street, Hartford, Connecticut.

Atlantic Airline and Electronic Schools, Ltd.

A Canadian affiliate offering Airline Career Training home study courses for residents of Canada. Canada Building, Ouellette Avenue, Windsor, Ontario.

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K. M. Myers
C. G. Young, Jr.
C. L. Foster

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Dormitory
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Counselor
for Men Students
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Director of
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J. P. Drotts,
Auditor
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Director of
Graduate Placement
R. E. Parks,
Supervisor of
Maintenance
J. E. Lovan,
Faculty Advisor
Institute of Radio Engineers
P. E. Lynch,
Director of
Home-Study Division
E. T. Platt,
Ass't. Director of
Home-Study Division
L. A. Betros,
Director of
Technical Publications
H. D. Van Sickle,
Manager,
Hartford Airline Personnel School

Faculty For Resident and Home Study Schools

David Beckman, B. S. Instructor in Airline Operations — 10 years cumulative experience.***

Willadean Berglund, B.A. Instructor in Airline Hostess and Reservations Procedures — 7 years cumulative experience.

L. A. Betros. A.S. Member of I.R.E., A.S.E.E. and A.F.C.E.A. Director of Technical Publications — 15 years cumulative experience.

Marion E. Bodurtha. Instructor in Airline Hostess and Reservations Procedures — 7 years cumulative experience.

Harold H. Brown, B.S. Member of A.S.E.E. Instructor in Radio and Mathematics — 25 years cumulative experience.

Alan F. Cockroft, A.S. Instructor in Radio and Television — 5 years cumulative experience.

Hershel D. Cotten. Instructor in Laboratory Procedures — 4 years cumulative experience.

Esta Jo Cutrone. Instructor in Home Study division — 8 years cumulative experience.

William A. Deister, A.S. Member of A.S.E.E. Instructor in Radio, Television and Engineering Technology — 19 years cumulative experience.

Louis S. Finnegan. Member of A.R.R.L. Instructor in Airline Operations and Ticketing — 15 years cumulative experience.

Arlene Grindle. Instructor in Typing and Teletype — 6 years cumulative experience.

Donald H. Harling, B.A. Instructor in Airline Reservations — 10 years cumulative experience.

James B. Harris, B.S. Member of I.R.E. and A.S.E.E. Instructor in Radio and Television — 21 years cumulative experience.

Lois W. Hine. Instructor in Typing and Teletype — 12 years cumulative experience.

Holly C. Howlett. Instructor in Laboratory Procedures — 17 years cumulative experience.

Edna Kruse. Instructor in Teletype and Airline Reservations — 16 years cumulative experience.

William E. Livingston, B.S. Instructor in Radio and Television — 9 years cumulative experience.

James E. Lovan, B.S. Member of I.R.E., A.S.E.E. and A.R.R.L. Instructor in Radio, Television and Engineering Technology — 31 years cumulative experience.

Sarah P. Mackie, A.S. Member of A. S. E. E. Instructor in Business English, Drafting and Mathematics — 21 years cumulative experience.

Ernest A. McCall Member of I.R.E. Instructor in Radio and Television Broadcasting — 21 years cumulative experience.

Lyle R. Medley. Instructor in Radio and Television — 21 years cumulative experience.

 (continued overleaf)

Lowell H. Molby, A.S. Member of A.S.E.E. Instructor in Radio, Television and Engineering Technology — 19 years cumulative experience.

Paul L. Nail, B.S. Member of A.S.E.E. and I.R.E. Instructor in Radio and Mathematics — 29 years cumulative experience.

Ray Pettinelli. Instructor in Airline Operations—8 years cumulative experience.

Earl T. Platt, M.A. Assistant Director of Home-Study Instruction — 31 years cumulative experience.

Joseph P. Rainey. Member of I.R.E. Instructor in Radio and Television — 12 years cumulative experience.

Donald E. Ramsey. Instructor in Radio and Television — 6 years cumulative experience.

Harold J. Roberts. Instructor in Airline Operations — 8 years cumulative experience.

Loren A. Schoonover, A.S. Instructor in Radio, Television and Engineering Technology — 5 years cumulative experience.

Pearl A. Scott, A.S. Member of A.S.E.E. and I.R.E. Instructor in Radio, Television and Engineering Technology — 17 years cumulative experience.

John H. Smith. Member of A.R.R.L. Instructor in Airline Communications and Ticketing — 18 years cumulative experience.

Roy O. Soellner, M.S. Member of A.S.E.E. Instructor in Radio and Mathematics — 31 years cumulative experience.

David F. Srader. Instructor in Laboratory Procedures — 4 years cumulative experience.

William J. Sterner, A.S. Instructor in Radio, Television and Engineering Technology — 5 years cumulative experience.

Patrick A. Tudor. Instructor in Laboratory Procedures — 22 years cumulative experience.

Merrill W. Van Dyke, B.A. Member of A.S.E.E. Instructor in Business English and Technical Report Writing — 10 years cumulative experience.

Noble E. Vilander, A.S. Member of A.S.E.E., I.R.E. and A.F.C.E.A. Director of Technical Instruction — 22 years cumulative experience.

Gladys L. White, R.N. Instructor in Typing, Airline Reservations and Hostess Procedures — 21 years cumulative experience.

Robert L. White. Instructor in Laboratory Procedures — 6 years cumulative experience.

C. E. Williamson, B.A. Instructor in Industrial Relations — 12 years cumulative experience.

***Cumulative years experience includes years of higher education, teaching, and practical experience in subjects taught.
A.S., Associate of Science Degree.
B.A., Bachelor of Arts Degree.
B.S., Bachelor of Science Degree.
M.S., Master of Science Degree.
A.S.E.E., American Society for Engineering Education.
I.R.E., Institute of Radio Engineers.
A.F.C.E.A., Armed Forces Communications and Electronics Association.
R.N., Registered Nurse.
A.R.R.L., American Radio Relay League.

Photograph taken during a recent meeting of Central's Airline Advisory Board held at Hartford, Connecticut.

Airline Advisory Board

In 1939 an Advisory Board composed of officials of the commercial air carriers was formed for the purpose of coordinating the specialized airline training activities of the Institute with the fast-growing needs of the industry. This Board holds annual conferences to review curricula and the Institute's training facilities. The guidance provided by this group in formulating the training in the Airlines Division of the Institute is invaluable, and assures the constant revisions necessary to keep pace with the industry's requirements.

The present Advisory Board consists of 31 members, representing 24 commercial airlines. The members by Sections are:

COMMUNICATIONS - OPERATIONS SECTION

G. E. Mears, Director of Communications, American Airlines
J. R. Cunningham, Director of Communications, United Air Lines
R. H. Weihe, Director of Communications, Northwest Airlines
C. G. Aschenbach, Superintendent of Communications, Capital Air Lines
R. A. McAvoy, Supt. of Communications-Data Processing, Eastern Air Lines
W. W. Lynch, Ass't. Vice-President—Communications, Pan American Airways
L. A. Watson, Superintendent of Communications, Piedmont Airlines
W. E. Morris, Manager of Communications, National Airlines
J. W. Seay, Director of Ground Operations, Braniff Airways
E. L. Hallgren, Director, Customer Relations Training, Western Air Lines
J. R. Bender, Manager, Operations Service, Continental Air Lines
J. J. Scholze, Manager of Ground Operations, Capital Air Lines

(continued overleaf)

RESERVATIONS - TICKETING SECTION

Frank Sharpe, General Traffic Manager, Eastern Air Lines
F. C. Klein, Manager of Reservations Sales, Capital Air Lines
M. L. Perry, Director of Reservations, United Air Lines
Rex Aber, Manager, Reservations Procedures, Braniff Airways
Lowell J. White, Dir. of Reservations - City Ticket Offices, Northwest Airlines
J. M. Slichter, Director, Passenger Services, Western Air Lines
R. G. Petitte, Director of Reservations, Trans World Airlines

LOCAL SERVICE CARRIER SECTION

E. L. Snoke, Superintendent of Stations, Frontier Airlines
J. L. Herring, Director, Station Operations, Trans-Texas Airways
T. M. Needham, Superintendent of Stations, North Central Airlines
Truman Jones, Superintendent of Stations, Central Airlines
Robert Collins, Director of Personnel, Lake Central Airlines
B. E. Novia, Superintendent of Stations, Bonanza Airlines
H. G. Scull, Superintendent of Stations, West Coast Airlines
Robert Schumm, Director, Stations, Allegheny Airlines
Charles C. Mounts, Superintendent of Stations, Ozark Air Lines
J. Carl Ferrel, Superintendent of Stations, Southwest Airways
George F. Attwood, Superintendent of Stations, Southern Airways
Lee W. Holmes, Jr., General Traffic Manager, Mohawk Airlines

View from the front porch of Midland Hall (Central's dormitory for women) showing the Kansas City Power and Light Building in the background.

GENERAL INFORMATION

SECTION 1

History

The Central Training organization was started in 1931, when headphone radio sets were still popular and when the Tri-motor Ford was a modern commercial airliner. Originally known as the *First National Television School*, the Institute constructed and operated the first television station west of Chicago to broadcast on a daily schedule, telecasting up to 90 miles from Kansas City. The mechanical television broadcasting and receiving equipment used in the pioneering days of 1932 was crude and inefficient compared to the modern electronic systems now employed in Central's training laboratories. Experimental Television Station W9XAL originated several programs in its studios which fed into the Columbia Broadcasting System's radio network. Ted Malone, John Cameron Swayze and Count Basie were a few of the early day performers.

In 1934 the school was granted one of the three first "Hi-Fidelity" commercial broadcast station permits by the Federal Communications Commission. On 1530 kilocycles, W9XBY pioneered in the development of high fidelity radio broadcasting, using resident students as operating engineers and home study students as "listening posts." In 1937 the Institute was incorporated as the *Midland Radio and Television School* and was owned exclusively by the Midland Broadcasting Company, also owners of radio station KMBC in Kansas City. The success of the Institute for training highly qualified broadcast technicians spread to the commercial airlines and in 1936 courses were offered in airline ground radio operation. An airline Advisory Board was formed in 1939 to assist the Institute in the formulation of additional airline training courses.

At the beginning of World War II, the Institute occupied the top four floors of the Kansas City Power and Light Building plus additional classroom and laboratory space in the Keystone Building at 1420 Main Street. Resident and home study enrollment was then approximately 1,400 students. During the war years courses for civilian men were discontinued and full effort was devoted to the training of 23,000 enlisted men and women for the Army Signal Corps. Two additional schools were opened for this purpose, one in Athens, Georgia, and a second school in Kansas City whose facilities were devoted exclusively to the training of high-speed radio operators for the Midwestern Signal Corps Training Center, Camp Crowder, Missouri.

Beginning in 1941, the Institute offered its first specialized airline courses for women, utilizing the radio and teletype training facilities that had been vacated by the discontinuance of civilian male enrollment. These women graduates were employed by the airlines as communications operators, taking the place of men going into military service. Shortages of trained personnel also developed quickly in airline reservations, ticketing, space control, etc. The Institute inaugurated courses in these subjects for women, then in 1944 added hostess *(stewardess)* training to its curricula. After World War II, all courses were continued for women and improved courses were started for men to pre-

pare for airline positions in ground operations, communications, reservations and ticketing.

The Institute purchased its own building at the corner of 17th and Wyandotte Streets, in 1943. The building was formerly known as the Webster Public School, and was used for the "Quality Hill" section of the city. After complete rehabilitation, the new training quarters were opened for students in 1944. In 1945 the present administration purchased the Institute from the Midland Broadcasting Company and changed the name to *Central Radio and Television School.* During the same year an office building was acquired directly across Wyandotte Street from the school building. Home study and resident enrollments were expanded beginning in 1945 and training courses were offered in nearly all areas of technical electronics and the airline field. The specialized airline courses offered for women became extremely popular, proving the dire need of commercial airlines for trained personnel as they commenced expansion after World War II.

In keeping with the recognition acquired by the Institute in industry and with national educational organizations, the name was changed in 1953 to *Central Technical Institute.* As total enrollment advanced steadily to over 9,000 students, the *California Air College* of Los Angeles was acquired in February, 1955 to serve as a West coast branch of the Institute. In March, 1956 an East coast branch, known as the *Hartford Airline Personnel School,* was started in Hartford, Connecticut, then in June of the same year a Canadian affiliate, *Atlantic Airline and Electronic Schools, Ltd.,* located in Windsor, Ontario, was opened for student enrollment.

Accreditation and Affiliations Of Central Technical Institute

A Technical Institute must constantly remain abreast of developments in the fields where its graduates are employed, and it must conduct its educational programs on a high academic level. Central has for many years enjoyed the assistance and cooperation of the electronics and airlines industries.

Central's major resident and home study technical courses are accredited by the Engineers' Council for Professional Development as Engineering Technician programs. The ECPD is a nationally-recognized agency which also accredits the professional engineering curricula of colleges and universities.

Central is listed by the U. S. Office of Education in its "Directory of Institutions of Higher Learning, Part 3."

Central is an affiliate institutional member of the American Society for Engineering Education.

Central is a member of the National Aviation Education Association.

Central's resident technical curricula have been inspected and approved by the National Council for Technical Schools, an association dedicated to the improvement of the standards of private Technical Institutes.

Central is listed in the current U. S. Government publication, "Accredited Higher Institutions."

Central offers airline and electronics curricula, resident and home study, approved by the State of Missouri Approval Agency and the Veterans Administration for the training of veterans.

Central's courses in specialized airline training have been formulated under

the guidance of its Airline Advisory Board.

Central's home-study courses have been inspected and accredited by the National Home Study Council, an organization interested in adult home study and the standards of home study schools.

Central is a Group Member of the Armed Forces Communications and Electronics Association.

Central is a Professional Member of the National Rehabilitation Association.

Central is approved by the Institute of Radio Engineers (a professional society) for the establishment of a Student Associate branch.

Central is approved by the U. S. Department of Justice, Immigration and Naturalization Service for the admission of foreign students.

Location of Schools

In Kansas City, Missouri

Kansas City, Missouri is a thriving Midwestern city with a population of over 1,000,000 in the metropolitan area. It is almost in the exact geographical center of the United States and is easily accessible via transportation systems from all directions. Seven scheduled passenger airlines and twelve trunk line railroads serve Kansas City. It ranks 18th in population, 14th in the number of airline operations, and 1st as a wheat market in the United States.

Central Technical Institute is located near the heart of the downtown district, but far enough from the bustle of city traffic to permit concentrated academic effort. The downtown location provides ready access to where most students secure part-time work. Also, it is only a few blocks to the shopping district, theatres, restaurants, and Kansas City's famous Municipal Auditorium where varied events are in progress throughout the year. The Institute is less than seven minutes by cab from the airport, railroad terminal or bus station.

Kansas City is a city of great natural beauty. Its residential districts are world-renowned. Its park and boulevard system is one of the country's finest. Its people are known for their friendliness and spirit of cordial hospitality. Kansas City possesses a rich cultural background with an outstanding symphony orchestra, a famous gallery of art, a fine museum, a University, a research organization, an outdoor summer theatre and beautiful churches of nearly all denominations.

In Los Angeles (Hollywood), California

The California Air College is located in downtown Hollywood, California, a short distance from Hollywood and Vine, Hollywood's famous corner! Fabulous Los Angeles County is growing at the rate of over 1,000,000 per year in population, constituting one of the most rapidly expanding areas in the United

States. Along with this mass migration to Southern California; production, jobs, buying power, and general economic level are rising to unprecedented heights.

The varied points of interest around Hollywood and Los Angeles, the ideal climate, the beautiful parks and gardens, motion picture studios, beaches, mountains, and entertainment facilities of all kinds combine to make Hollywood a most desirable place to attend a resident school.

In Hartford, Connecticut

The Hartford Airline Personnel School is located in downtown Hartford, two blocks west of the central business area along Main Street and two blocks east of Bushnell Park, bordered by the State Capitol, the new Statler Hotel, the YMCA, and the Union Station of the New York, New Haven & Hartford Railroad.

The school is in the midst of medium price restaurants, drug stores, department stores, and ample public transportation facilities. Several apartments, lodges and private homes are located within 15 minutes via public transportation where comfortable, supervised living quarters are arranged for students. Part-time work is usually available for those who need to supplement their finances.

In Hartford, the student enjoys the invigorating climate of New England, proximity to Cape Cod and Long Island Sound, and scenes of historic events of the Colonial, Revolutionary and early Victorian periods. Ample facilities for recreation and amusement are available in Hartford.

Buildings

In Kansas City, the Institute occupies six buildings, all within an area of three blocks and approximately six blocks from the center of the downtown district. The main school building *(pictured on inside front cover)* contains classrooms and laboratories for the airline and technical divisions of the school. With approximately 30,000 square feet on three floors, the building provides nine laboratories and nine classrooms, plus adequate space for the school office, library, and instructor offices. The general administrative offices of the Institute occupy the entire second floor of a three-story office building located at 216 West 17th Street, directly adjoining the rear of the main school building, and identified as the "Annex." 7,500 square feet on this floor accommodate the Registration, Accounting, Home Study and Lesson Preparation Departments. On the third floor of the Annex building, additional classroom and laboratory facilities are provided for electronic classes.

The third building is a 7,000 square foot, two-story office structure directly across the street from the Institute at 1639 Wyandotte Street. Airline Hostess training facilities are located in this building.

The student dormitory for women is at 1601 Broadway. Facilities are available for 100 girls and include a recreation room, storage rooms, laundry facilities, guest lounge, sick ward, and a "community snack" kitchen. The dormitory is a three-story brick structure, meeting all city requirements for fire protection, health, electrical safety, etc. A resident manager is on duty at all times.

The fifth location is at 1635 Central Street where the Institute maintains a fraternity house for members of Tau Alpha Pi, a national honor society for Technical Institute students. The school's printing plant occupies 2,500 square feet in the sixth building at 1715 Wyandotte Street.

All buildings occupied by the Institute use automatic heating, have adequate lighting, are well ventilated and pass all city regulations. The Institute does not provide dining facilities for students because of the many nearby restaurants; however, a Snack Bar is available in the main school building where students may purchase sandwiches, soft drinks, school supplies, etc., at reasonable prices.

The branch schools in Hartford, Connecticut and Los Angeles, California each have about 8,000 square feet for classrooms, laboratories and administrative offices. Each school has a capacity of 200 students and occupies all of the second floor of a two-story office structure. All City regulations pertaining to fire, health and safety are fulfilled.

Training Facilities

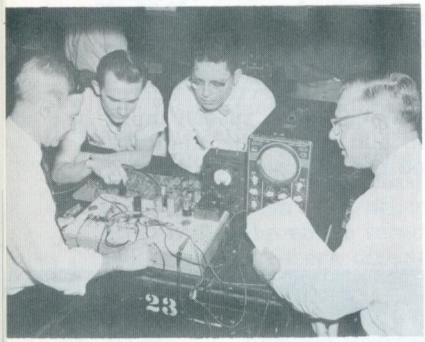
Training equipment and facilities are adequate for all resident and home study courses. The appraised value of technical laboratory equipment, airline training equipment, classroom furnishings, office machines and furniture, operating supplies, printing equipment and dormitory furnishings is approximately $450,000.00. Visual aids and demonstration apparatus are provided to supplement classroom lectures and reference books, volumes and periodicals are available for student use.

In Kansas City, the Technical Division maintains a supply of over 500 student kits for the construction of radio receiver circuits, and many complete radio transmitters are available for experimental laboratory work. A radio and television broadcast studio, with three separate control rooms, is provided in the Kansas City school for those who wish to specialize in commercial broadcasting. The studio is equipped with four late-model television cameras, a television switching and control console, television film projectors, microphones, lighting equipment, a recording console, complete audio speech input equipment and an FM transmitter with modulation and frequency monitors. During the past few years, the Institute has installed the necessary equipment

Facilities for 100 women students are provided at Midland Hall, located just three blocks from Central's main school building.

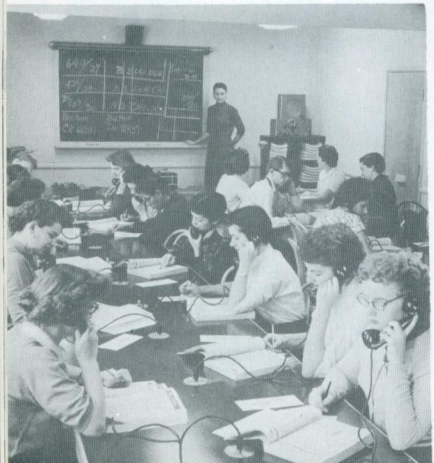
to properly teach the theory and practice of COLOR TELEVISION. Commercial test equipment, microwave training sets, computers, optical measuring sets, commercial television receivers, aircraft radio and navigational apparatus, engineering drafting sets, student experiment boards, tools, etc., are all available in adequate quantities to insure a thorough practical training in electronics. All students spend approximately one-third of their time in practical laboratory work.

In the Airline Division, resident training facilities are essentially the same in all three schools — Kansas City, Hartford and Los Angeles. Telephone outlets, monitors and amplifiers are provided for practice sessions in airline telephone sales and in reservations and space control. Airline ticket counters are available for practice in ticketing, use of the Airline Guide and the Airline Tariff. Hostess training facilities consist of a food service mock-up, airplane seats, dressing tables for make-up instruction, etc. Communications classrooms at all three schools are equipped with standard typewriters and several Teletype machines for speed and accuracy practice in teletype and ground radio communications. In other classrooms, instruction is given by lecture and demonstration to provide a complete practical training for various airline positions. All men studying Airline Operations are given aeronautical weather observer training using altimeters, psychrometers, calculators, ceiling balloons, wind vanes, speed indicators and clinometers.



Training Facilities

Central laboratories and classrooms are completely furnished with modern equipment and visual training aids.



Student Housing

A Housing Assistance Department is maintained at each school to aid students in locating suitable housing accommodations. Most students accept the facilities arranged by the school, some of which are located within walking distance and others within 15 minutes via public transportation. Rates range from $7.00 to $11.00 per student per week, depending upon accommodations, the number of students per room, and the location. These rates *do not* include meals. The rooms are furnished and the rates include towels and bed linens. Some rooms provide cooking facilities.

The Institute operates Midland Hall dormitory for women in Kansas City. At other locations, arrangements are maintained with various apartment house managers and private homeowners to insure adequate accommodations for each class.

If a student has a special housing problem, he should write in advance directly to the Housing Assistance Department where he will attend school, otherwise he can be accommodated on the day of registration. Married men with children are strongly urged to come alone and arrange for their family to follow after suitable housing facilities have been located.

Part-Time Employment

The Institute will assist students who are in need of part-time employment to locate jobs after school and on week-ends. The availability, volume and nature of part-time work is dependent upon current business conditions and the seasons. The Institute cannot guarantee any specific amount or type of work for a particular student; however, jobs at $1.00 to $1.50 per hour can usually be obtained if the student is not too selective. The only restriction concerning outside work is that it shall not be detrimental to the student's scholastic progress.

Placement Service

The Institute maintains Placement Departments in Kansas City, Hartford, and Los Angeles. Free *lifetime* placement service is available at each location for all graduates. The Institute does not guarantee employment to its graduates; however, the demand is usually high throughout the year and the strategically located Placement Departments have been very successful in assisting graduates to obtain employment interviews in the general area of their preference. Active contact is maintained with all commercial airlines in the United States and with employers in the electronics field.

Foreign Students

The Immigration and Naturalization Service of the United States Department of Justice has approved Central Technical Institute to accept qualified foreign students for full-time enrollment in Electronics, Radio and Television Technology in Kansas City. Obtaining a student visa and compliance with the regulations of the Immigration and Naturalization Service are the responsibility of the student. Canadian students are advised to apply to the nearest American Consular Office for a Certificate of Eligibility *(Form I-20)* to attend resident classes in Kansas City, Hartford or Los Angeles.

Prospective enrollees from any foreign country may apply for admission to the Institute by completing an Enrollment Application form and submitting it together with a transcript of all previous education translated into English. The matriculation fee in United States funds should accompany the Application.

The Institute will assist foreign students to obtain contact with local families of their own nationality, and in all other ways to adjust quickly to the desirable environment of the Midwestern United States.

Educational Assistance for Veterans

All courses in the Resident Division of the Institute in Kansas City are approved by the Missouri State Approval Agency and the Veterans Administration for the training of veterans under Public Laws 16, 346, 610, 634, 894 and 550. These laws provide educational benefits for veterans of World War II, the Korean conflict, and orphans of veterans whose death resulted from service-connected disabilities.

Under Public Law 550, a veteran who served ninety days or more in the armed forces between June 27, 1950 and February 1, 1955, is entitled to a monthly Education and Training allowance from the government if he begins his training within three years from his date of discharge. For full time resident students, the allowance will be from $110.00 to $160.00 per month, according to the number of dependents he may have. The veteran will pay his tuition directly to the school and pay his own living expenses from his allowance.

The Institute also offers home study courses in Airline Station Agent Training and Radio-Television-Electronics approved by the Veterans Administration. Veterans enrolling in these courses will receive reimbursement from the government for the full tuition, but will not receive an extra amount for living expenses.

All veteran enrollees must provide the Institute a statement of previous education and training (in college, technical, or vocational schools) and must apply to the Veterans Administration in order to obtain confirmation of their eligibility to receive educational or tuition allowances.

Training Prior to Military Service

High school graduates who anticipate military service will find that specialized training in electronics or aeronautics is excellent preparation for a military assignment in the same field upon induction. All of the military services are in urgent need of qualified technicians to install, maintain and operate complex electronic equipment. The Air Force needs men in occupational specialties such as Air Traffic Controllers, Weather Observers, Transportation Agents, etc. The Institute provides each student or graduate entering military service with a statement of his school record, showing the course pursued and the military occupational specialty *(MOS)* for which he is trained.

The Department of the Air Force has reviewed the curricula of many schools offering technical training and has approved Central Technical Institute as one whose training courses meet the requirements of the Air Force in the technical occupational fields. Graduates of Central may enlist in the USAF for assignment to an occupational field where their training will be used *(provided they are of military age and otherwise qualified)*.

Graduates who enter the Air Force in this manner are called "By-Passed Specialists." This means that upon completion of basic military training, they may move directly into their occupational specialty.

Selective Service Deferment

No institution can guarantee that a student will be deferred indefinitely from military service by reason of his school enrollment. National Selective Service Headquarters has adopted certain regulations consistent with the Selective Service Act, and periodically issues directives to Local Boards. Local Boards are assigned a quota each month designating the number of eligible men that are to be ordered to report for induction. In general, Local Boards follow the directives of National and State Headquarters to fill their quotas; however, they have the authority to deviate if necessary.

In accordance with the provisions of Local Board Memorandum No. 53 (March 9, 1953), Central Technical Institute will file the required information with a student's Local Board at the appropriate time. Such information establishes with the Board that he is attending an institution of higher learning and is therefore entitled to consideration for a 1-S college student deferment. If the student maintains his scholastic grade average in the upper 33% of his class, he may be reasonably assured that he will not be called for induction until at least the end of his current semester.

Student Associations and Activities

The Student Council is a representative body composed of students from all classes of the resident school. Officers of the Council are elected by the Council members, being selected for their qualities of leadership. The Council actively supports dances, inter-class bowling, a student loan fund, and other activities of a general welfare nature. The administration of the Institute cooperates closely with the Council in all matters of mutual interest.

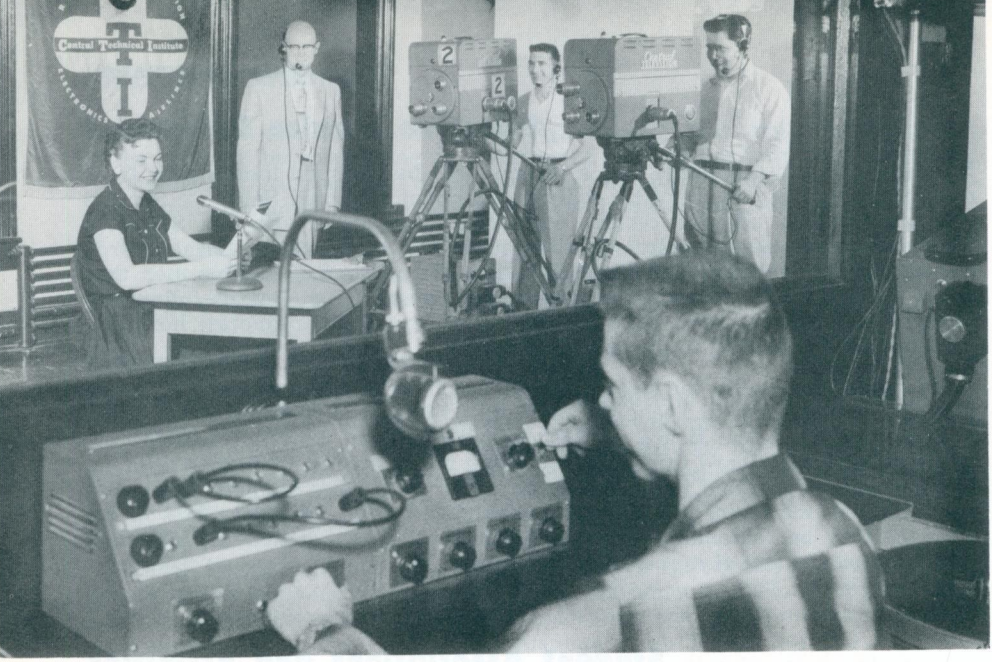
The Institute of Radio Engineers' Student Associate Branch has as its basic purpose the professional development of its members. Regular meetings are held during the winter months with faculty and local industrial speakers on subjects of current interest.

Student teams are sponsored for local competition in softball, basketball and bowling. A variety of facilities are available to students for recreation and relaxation. Swimming, golf, riding and tennis are available in the public parks. Seasonal spectator sports are held in parks and local public buildings. Downtown theatres within a few blocks of the school offer inexpensive entertainment.

Tau Alpha Pi

The TAU ALPHA PI National Honor Society is the technical institute's counterpart of the university's Phi Beta Kappa and the engineering school's Tau Beta Pi. Its purpose is to provide recognition for a high standard of scholarship among students in technical institutes; to promote and encourage scholastic achievement by offering membership in the Society to outstanding students; and to engender certain desirable qualities of personality, intellect, and character among its members.

The Epsilon Alpha Chapter of TAU ALPHA PI is established at Central Technical Institute in Kansas City. The chapter house is located on property directly adjoining the school. Students are not eligible for membership consideration until grade averages are computed at the end of the second semester.



A radio and television broadcast studio, with three separate control rooms, is provided at Central's Kansas City school for those who wish to specialize in these fields.

Compartmentalized benches in this laboratory at Central's Kansas City school, allow each student to obtain personal instruction and individual experimentation.

ACADEMIC INFORMATION

SECTION 2

Requirements for Admission

Resident Technical Division. To be accepted for admission, the applicant must be a graduate of an accredited high school, or possess a General Educational Development (G.E.D.) certificate. In addition, at least one year of high school algebra must have been completed satisfactorily. The applicant should also be able to score a grade of 35 or more on the Institute's General Electrical Information test upon entrance. Physical condition and general appearance must be consistent with employment requirements in the electronic and television industries. The applicant must be over 16 years of age. Both men and women are accepted for enrollment. If the applicant intends to take the FCC examination for a Radio Operator's license or permit of any class, he must be a citizen of the United States of America or possess final naturalization papers.

Resident Airlines Division. The applicant must be a graduate of an accredited high school or possess a General Educational Development (G.E.D.) certificate. Applicants under 18 years of age or over 39 can not be accepted. The applicant must be able to meet the physical requirements of the commercial airlines. Aliens must possess an Alien Registration Card or Work Permit if they expect employment in the United States. Further requirements are an adaptable personality, ability to meet the public graciously and courteously, no dialect or impediment of speech, neat appearance and absence of skin blemishes which are apparent in normal clothing. Men and women are accepted for enrollment.

How To Apply For Admission

Prospective students in or near Kansas City, Hartford, or Los Angeles are invited to request enrollment information at the Institute's local office. See listings elsewhere in this Bulletin for addresses and telephone numbers. Outside the areas served by Regional Registration Offices, applications may be placed with a District or Regional Registrar. All enrollment applications must be approved by the Registrar in Kansas City. Should an application not be approved, all payments for matriculation or registration will be returned *in full* to the applicant. Information beyond that contained in this Bulletin may be obtained by addressing an inquiry to the Registrar, Central Technical Institute, 1644 Wyandotte Street, Kansas City 8, Missouri. Use the form on the last page of this Bulletin.

Students enrolling in accredited courses must provide the Institute a transcript of their high school record. This may be sent by the high school directly to the Institute. When enrollment requirements have been fulfilled, the applicant will be notified that he has been accepted for training and advised when to report for classes.

Advanced Standing

Students may be admitted with advanced standing by evaluation of their previous experience or education. Full credit for work completed in another school will be allowed so far as that work satisfies the particular requirements of the Division of the Institute in which the student registers. Qualifying examinations are used by the Institute to make such appraisals.

Examinations

Written examinations are administered frequently in all courses to determine scholastic standing. Percentage grades are computed and the student is advised of his grade on each examination. Periodic review and final examinations are given in all courses. The student may at any time request his grade average from his instructor or counselor. Unsatisfactory grade averages will result in probation or suspension from school. If a student is absent from an examination and presents a satisfactory excuse, he may receive permission to take a special "make-up" examination. Such special examinations must be arranged with the instructor and taken within one week following the date of the absence. Failure to take the special examination within one week results in a grade of zero.

Grading Policy

The work of students is evaluated as follows:

94-100	Excellent	A
85-93	Good	B
79-84	Fair	C
70-78	Low	D
Below 70	Failing	F
Inc.	Incomplete	
Con.	Condition	
W	Withdrew while passing	
WF	Withdrew while failing	

Incomplete signifies that the student has passed the final examination in a course, but is incomplete in his work. An "incomplete" must be converted to a final numerical grade within thirty days after completion of the course.

Condition signifies a final average grade from 65 to 70. A condition may be removed within 30 days following the completion of a course if the student successfully passes another final examination, in which case the final grade will be changed to 70.

Final grades below 65 may be raised only by repeating the course. A grade of W will be changed when the student re-enters the course at the point of his withdrawal.

A grade of WF requires that a student requesting re-entry be examined and appropriately required to repeat certain portions of the course.

Semester grades are computed on the basis of one-tenth grade point for each hour per week satisfactorily completed. A minimum of 2.1 grade points is required to pass.

Student Conduct

All students must conduct themselves in accordance with acceptable standards of courtesy and obedience. The regulations of the Institute include rules that are necessary to insure proper organization and operation. Every student is obliged to become thoroughly acquainted with the "*General Rules and Regulations*" which will be handed him on Registration day. The Institute reserves the right to cancel the registration or enrollment of any student whose conduct or influence is not in accord with standards regarded as necessary by the administration or faculty.

C. L. Foster *(left)*, President of Central Technical Institute, is shown here receiving a Digital Computer training aid from Representatives of International Business Machines (I.B.M.) Corporation. Central is constantly improving its curricula to keep abreast of latest industrial developments.

Attendance Policy

It is expected that all students will attend school each day except when illness prevents. No students are excused from any regularly scheduled class session, lecture or laboratory, except:

In the case of genuine illness, when a written statement must be submitted, preferably signed by the doctor, parent, or housemother. The excuse must be submitted to the Institute within three days following the date(s) of absence.

In the case of death in the immediate family.

In the case of unavoidable official call away from the school such as for jury duty, Selective Service physical examination, VA counseling, etc.

In the case of local disasters, such as fire, storms, floods, etc., of such nature as to prevent arrival on time or attendance after reasonable effort.

Each unexcused absence will reflect in the student's attendance grade. The school day is divided into two periods: (1) before lunch and (2) after lunch. Attendance grades are computed on the following basis:

A—No periods absent

B—One period absent during four consecutive weeks

C—Two periods absent during four consecutive weeks

D—Three periods absent during four consecutive weeks

F—Four periods absent during four consecutive weeks

When a student's attendance grade becomes "D," he will be handed a written warning. If his grade becomes "F," he will be dropped from the instructor's class roll and advised to report to the Counselor. The Counselor may or may not readmit the student to the class but, if readmitted, the student will be placed on probation with no further unexcused absences permitted for a period of 22 school days. Failure in attendance may constitute sufficient cause for dismissal.

To be admitted to class after being absent, all students are required to fill out an "*Admit to Class*" form. The student's entries on the form must show his class number, date(s) of absence, reason for absence, and his signature. Similar admits are required for tardiness.

Each "*tardy*" is considered the equivalent of one-half period of absence. No excuse will be accepted for tardiness unless previous arrangements have been made with the Counselor. If the student arrives in class before the end of the first hour it will count as a tardy and if he arrives after the end of the first hour it will count as one period of absence.

Class work or examinations missed as a result of absence or tardiness must be made up voluntarily within one week. All arrangements for make-up work are to be made with the class instructor.

Absence from class on the day before or after a holiday or recess is regarded as a double absence. The school is in session throughout the calendar year except holidays and recess periods shown on the School Calendar in this Bulletin.

Radio and Television Broadcasting continue to offer outstanding career opportunities to technically trained men.

Graduation Requirements

Upon satisfactory completion of a course of study the student will be awarded a Certificate, Diploma, or Associate of Science Degree. In no case will an award be made if the final grade for the course is F, Incomplete, or Conditional. Certificates are awarded for courses less than 960 contact hours of classroom and laboratory work. Diplomas are awarded for courses longer than 960 contact hours.

The degree of Associate of Science in Electronics, Radio and Television Technology is awarded to graduates of the complete resident technical course of six semesters. The A.S. Degree is conferred by the Officers of the Institute upon recommendation of the Faculty.

All Certificates, Diplomas, and Degrees will set forth the term and character of the instruction received and will be signed by appropriate officials of the Institute.

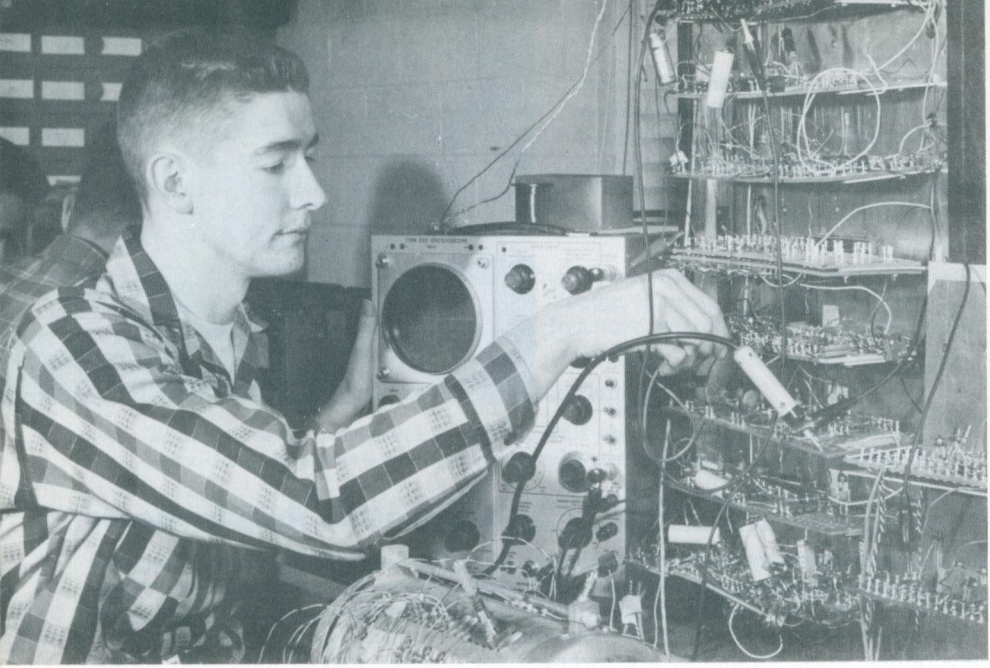
Certificates and Diplomas are also awarded by the Home Study Division of the Institute upon satisfactory completion of a prescribed course of instruction.

Transfer of Credit

The general policy of other institutions of higher learning (colleges, universities and ECPD accredited technical institutes) is to evaluate the work completed at Central Technical Institute by achievement examination and allow appropriate credit according to the curriculum pursued and other usual requirements of the receiving institution. In the case of most technical institutes with ECPD accredited curricula, advanced standing will be allowed without examination for parallel work or similar subjects.

Vocational Rehabilitation Programs

Cooperative effort between the Institute and the Department of Vocational Rehabilitation in many States has resulted in the rehabilitation of hundreds of disabled persons into self-sustaining occupations. In the broad fields of Electronics and Aviation, there are many jobs which can be performed by the physically handicapped. Courses may be taken by correspondence through the Home Study Division, by part-time study in the Evening Division, or in full-time Resident study.



Skilled electronic engineering technicians are urgently needed by industry. Here a Central graduate assists in the research and development of drum storage (memory) systems for digital computers.

—Remington Rand Univac photo

The increased demand for air transportation has created a steady need for trained airline personnel. Here a hostess checks on the comfort of her passengers.

—Pan American World Airways photo

RESIDENT COURSES

SECTION 3

Resident courses in Electronics are offered in Kansas City and Los Angeles. Airline Personnel Training courses are offered at all three locations: Kansas City, Los Angeles, and Hartford. Admission to all resident courses must be approved by the Registrar of the Institute in Kansas City.

Candidates may apply for admission by mail or with an authorized Regional or District Registrar. The required Reservation and Matriculation fee must accompany the application. After reviewing the candidate's qualifications, the Registrar in Kansas City will notify the student of his admission or rejection. If admitted, the Registrar will specify the date on which the student is to enter resident school, and will forward orientation material to enable the student to prepare for entrance. If the candidate is not acceptable according to the entrance requirements of the Institute, the Reservation and Matriculation fee will be returned.

Courses Offered

1. ELECTRONICS, RADIO AND TELEVISION TECHNOLOGY **Code: ERTT**
A full-time program of instruction requiring six semesters *(3120 hours)* and leading to the award of an Associate of Science degree upon successful completion. Accredited by the Engineers' Council for Professional Development as an Engineering Technician curriculum. Available only at the Kansas City school. Requires two years to complete. Approved for veterans.

2. AIRLINE PERSONNEL TRAINING **Code: APT**
A full-time day course offered in Kansas City, Hartford, and Los Angeles. The length of this course is one quarter *(12 weeks)* and is formulated under the guidance of Central's Airline Advisory Board consisting of representatives from 24 major commercial airlines. This course is approved for veterans at the Kansas City school. For men and women.

3. BASIC RADIO — TELEVISION **Code: BRT**
A resident, part-time program of evening instruction requiring the equivalent of four semesters *(1800 hours)* to complete. Available only in Kansas City. This course is approved for veterans and is accredited by the Engineers' Council for Professional Development as an Engineering Technician curriculum. A diploma is awarded upon successful completion.

4. ELECTRONIC TECHNICIAN COURSE **Code: ETC**
A full-time resident course of instruction requiring four quarters *(48 weeks)* and leading to the award of a diploma upon successful completion. Available only in Los Angeles.

All resident day courses are in session 30 hours per week. Evening classes in Kansas City convene on Monday, Wednesday and Friday between the hours of 7:00 and 9:30 P.M., a total of 7½ hours per week.

A description of the subjects in each of the above resident courses is included in this Section.

Tuition And Fees

	COURSE			
	ERTT	APT	BRT	ETC
Reservation and Matriculation Fee (remit with application)	$65	$100	$25	$60
Entrance Fee	$32.50	$75	None	$30
Monthly Tuition	$65	$85	$15	$60
Length of Course	104 wks.	12 wks.	1800 hrs.	48 wks.
*Total of all Tuition and Fees	$1560†	$345	$865	$720

*Includes all books, manuals, lessons and laboratory supplies.

†Total of tuition and fees is $270.00 for semesters 1 through 4 of 18 weeks each and $240 for semesters 5 and 6 of 16 weeks each.

The Institute reserves the right to withdraw or change the tuition for any course listed in this Bulletin at its discretion, without prior notice. Additional fees are charged as follows:

Late Registration: Each student who enters resident school after the first day of his assigned registration date must pay a fee of $2.00 for late registration. Exceptions will be made for emergencies. A student will not be accepted if he is more than three days late without a reappraisal of his qualifications.

Library Fees: None. All library facilities of the Institute are provided as a part of the tuition.

Fee for Diploma, Certificate or Degree: None.

Transcript Fee. A fee of $1.00 will be charged for each official duplicate transcript of grades.

Supplies: None, except that supplies issued in certain courses must be returned to the school or paid for if the student withdraws prior to graduation. Examples: slide rule, tube manual, drafting guides, commercial textbooks, etc.

Students In Arrears

Students who do not, within seven days after notification, make full settlement of accounts for tuition or fees due the Institute will be subject to immediate suspension.

No student whose account is in arrears will receive a diploma, certificate, degree, honorable dismissal or a transcript of his record.

Refund Of Tuition And Fees

Students are not charged tuition in excess of the approximate pro-rata period of attendance in resident school. All amounts paid in excess of that due the Institute according to the refund plans below are returned to the student in the event of his withdrawal before completion of a course. The student is NOT committed by his enrollment contract to pay the full tuition and fees for a resident course at the time he enrolls. The Institute assists in financing the

cost of a resident course by permitting monthly tuition payments with no interest or carrying charges.

After acceptance of his enrollment, a student may request withdrawal if he finds it impossible to enter the assigned resident class. In such event, he must submit full particulars, and if approved, a refund of fifty *(50)* percent of the Reservation and Matriculation fee will be made if his written request is received by the Director of Student Accounts in Kansas City more than thirty *(30)* days prior to the specified class starting date.

It is understood that the unrefunded portion of the Reservation and Matriculation fee will be retained by the Institute to reimburse the cost of the orientation materials and other expenses incurred from processing the enrollment application and holding the class reservation.

If a student withdraws during the first month after he enters resident school he is eligible to receive a refund of his Entrance Fee as follows:

Withdrawal	Refund
During the 1st or 2nd week	50% of Entrance Fee
During the 3rd or 4th week	None of Entrance Fee

Unless the full cost of the course or semester is paid in advance at the time of entrance, the first tuition payment is due one month after the date of entrance and at regular monthly intervals thereafter. If a student withdraws during the first half of a monthly tuition period he will receive a refund of fifty *(50)* percent of the tuition paid for that month; if he withdraws during the third or fourth weeks of a monthly tuition period he will receive no refund; except that, no refund will be made to students pursuing the APT course after the course is ⅔ completed.

NOTE: The enrollment application and contract for Canadian students shall be subject to all applicable statutes and regulations which may be in force within the Province in which the applicant or guarantor resides. In such cases, the above refund policy is superseded by local regulations.

Student Expenses

Students are advised to avoid needless expense. Parents should not permit excessive expenditures for any purpose. The attempt to maintain oneself on a semi-luxurious scale of living is not only unnecessary but detrimental to good scholarship, conduct, and health. A number of students earn part of their expenses while attending the Institute by means of office work, part-time sales, store clerking, industrial work, waiting tables, and many different forms of manual labor. Before coming to resident school, the student should provide himself with sufficient funds to cover at least two months' expenses for tuition and subsistence so it will not be necessary to work until he has become adjusted to the new environment.

Student Loan Fund

The Institute maintains a loan fund from which temporary loans are made to students for emergency purposes.

Central Counselor discussing job placement with student. Nation-wide placement service is an important feature of Central's training programs.

Curriculum For Electronics, Radio and Television Technology ERTT

Accredited by the Engineers' Council for Professional Development as an Engineering Technician Program (104 Weeks — Six Semesters)

	Symbol	Subject	Hours per Week Lecture	Laboratory
Semester I 18 Weeks	PE1	Principles of Electronics	15	
	RL1	Electrical & Radio Lab		10
	M1	Applied Radio Mathematics I	5	
		Totals	20	10
Semester II 18 Weeks	CE2	Communications Electronics	15	
	CL2	Communications Laboratory		10
	M2	Applied Radio Mathematics II	5	
		Totals	20	10
Semester III 18 Weeks	PT3	Principles of Television	15	
	TL3	Television Laboratory		10
	M3	Advanced Algebra	5	
		Totals	20	10
Semester IV (A) 18 Weeks	TD4	Technical Drafting I		5
	E4	English	5	
	PS4	Pulse Systems I	5	
	M4	Trigonometry	5	
	TV4	Television Transmission (first 12 weeks of Semester)	10	
	LP4	FCC License Preparation (last 6 weeks of Semester)	10	
		Totals	25	5
Semester IV (B)* 18 Weeks	TD4	Technical Drafting I		5
	E4	English	5	
	SP4	Radio & TV Studio Production		10
	TV4	Television Transmission (first 12 weeks of Semester)	10	
	LP4	FCC License Preparation (last 6 weeks of Semester)	10	
		Totals	15	15

	Symbol	Subject	Hours per Week Lecture	Laboratory
	PS5	Pulse Systems II	5	
	TD5	Technical Drafting II		5
Semester	MW5	UHF & Microwave Techniques I	3	
V	TO5	Television Optics	2	
16 Weeks	TR5	Technical Report Writing	5	
	LR5	Library Research		5
	M5	Calculus I	5	
		Totals	20	10
	IR6	Industrial Relations	2	
	TD6	Electronic Drafting		5
Semester	MW6	UHF & Microwave Techniques II	3	
VI	TS6	Telemetering and Servomechanisms	5	
16 Weeks	TE6	Test Equipment & Measurements	5	
	ML6	Measurements Laboratory		5
	M6	Calculus II	5	
		Totals	20	10

*Semester IV (B) is especially for students who wish to specialize in radio and television broadcast technology and terminate their course at the end of Semester IV. A diploma in Radio and Television Broadcast Technology is awarded upon successful completion. Each of the above subjects is described in this Section.

ERTT Electronics, Radio and Television Technology

This is a course of study at college level, requiring high school graduation for entrance and preparing the student for a position in industry as an Electronics Engineering Technician. The Associate of Science *(A.S.)* degree is granted upon successful completion.

The organization of this program on a "Progressive" plan is particularly attractive to the young man who may be approaching higher education without assurance that he will be able to complete a regular four-year college program. Under the "Progressive" plan, the student is qualified for successively higher positions in industry as he completes each Semester. For example, upon successful completion of Semester I, the student may enter a number of radio and electrical service occupations if he is unable to continue farther in the course. After Semester II, he can obtain a Second Class FCC Radiotelephone license which enables him to install and operate all kinds of two-way communications radio equipment, completion of Semester III equips him for television receiver servicing, Semester IV for the First Class FCC license required for commercial radio and television broadcasting, etc. These advantages are great and should be considered seriously when counseling a high school graduate whose personal circumstances cast doubt on his ability to complete a four-year program. Many graduates of this course *(or students who find it necessary to interrupt)* are able to continue their education after employment in local colleges through company-sponsored educational plans, working toward a Bachelor of Science degree.

This comprehensive, six-semester course provides 3,120 hours of contact instruction and is well-balanced from the standpoint of emphasis on education in the technical specialty, mathematics, drafting, English, industrial relations and technical writing. As in all courses for Engineering Technicians, a highly theoretical study of the subject matter is avoided. Instead, equal emphasis is placed on theory and practical application of that theory in an intelligent manner. By eliminating summer vacation periods, this entire curriculum of six semesters may be completed in two calendar years plus one month.

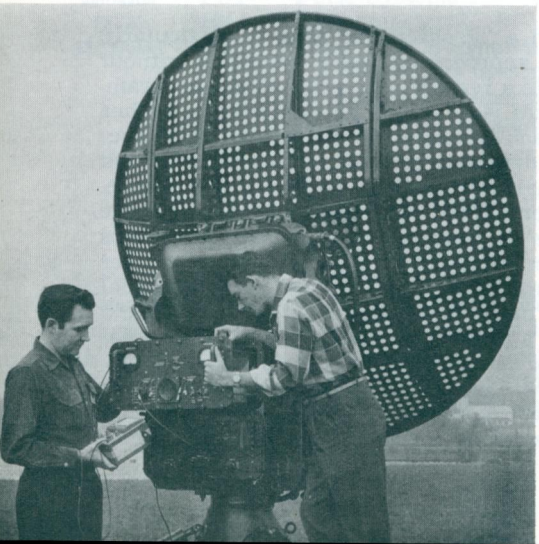
Description Of Subjects For Electronics, Radio and Television Technology ERTT

SEMESTER I — ERTT

PE1 — Principles of Electronics. This subject is preliminary to advanced electronics study, consisting of basic electrical laws, the theory of electronic circuit components, a thorough study of radio receiver circuitry, basic measuring and testing instruments, and receiver servicing procedures.

RL1 — Electrical and Radio Laboratory. A general practice in the use of small hand tools for the first three weeks. This is followed by five weeks experimentation in electricity proving Ohm's law and the laws of capacitive and inductive reactance. During the remaining ten weeks, radio circuits are constructed and the techniques of radio receiver servicing are demonstrated.

M1 — Applied Radio Mathematics I. A review of basic mathematical operations to enable the student to perform the calculations necessary for an understanding of electrical laws and fundamental electronic theory. The fundamental operations of decimals, fractions, square root, ratio & proportion, powers of ten, elementary algebra, and the use of the slide rule are reviewed. Intensive application of this math is made to problems directly in electronics and electricity.



Here two Central graduates are at work on GMD-1 meteorological radar equipment.

—Crosley Division, Avco Mfg. Co. photo

SEMESTER II — ERTT

CE2 — Communications Electronics. An advanced study of electronic circuitry, concentrating on oscillators, RF amplifiers, modulators, high voltage power supplies, antennas, transmission lines, AM and FM broadcasting transmitters, microphones and audio amplifying equipment.

CL2 — Communications Laboratory. Low-power oscillator and amplifiers are constructed during the first four weeks, then the student learns to make performance tests on modulators and complete transmitters. Experiments are performed on three-phase power supplies, antennas, transmission lines, and protective control circuits. Each student works on fourteen different kinds of transmitter circuits ranging in power up to 3,000 watts and using all different methods of carrier wave modulation.

M2 — Applied Radio Mathematics II. A review of mathematics useful to the study of electronic theory covered in this semester. Selected topics in logarithms, fundamental trigonometry, algebra and complex numbers are taught and applied to problems related to the study of motors and generators, decibels, antennas, tube characteristics, load lines, modulation percentage, etc. Rotating vectors and the j-operator are used in the solution of wave propagation and impedance problems.

SEMESTER III — ERTT

PT3 — Principles of Television. A study of wave-shaping, wave-control and discriminator circuits is completed at the beginning of this subject, followed by multivibrators, oscilloscopes, cathode-ray tubes, video amplifiers, deflection circuits, synchronizing circuits and television power supplies. B-W and Color television receiver servicing techniques are studied and the use of transmission line sections as UHF circuit elements.

TL3 — Television Laboratory. Pre-wired television circuit boards with "snap-on" circuit components are used with oscilloscopes and vacuum tube voltmeters to conduct a series of wave-shaping experiments. Later, scanning and deflection circuits are constructed on the same experimental circuit boards. Included also is a laboratory study of UHF oscillators and amplifiers, transmission lines, matching stubs, and reactance modulators. The techniques of B-W and Color television receiver servicing are demonstrated as well as the commercial test equipment ordinarily needed for TV service work. Color TV servicing instruction is supplemented with additional experiments on the precision adjustments of convergence, purity, etc.

M3 — Advanced Algebra. This subject continues the study of algebra needed for electronic engineering problems, and preparatory to advanced work in trigonometry and calculus. Included are such topics as factoring, logarithmic graphs, linear and quadratic equations, simultaneous equations, solution of simultaneous quadratics, exponents and radicals, and determinants as needed for the solution of mesh circuits. Application to electronic problems is stressed by the selection of examples for practice.

SEMESTER IV (A) — ERTT

TD4 — Technical Drafting I. Drafting is one of the principal means of communication used by technicians and engineers. In semesters IV, V and VI, the student will receive a total of 250 hours drafting instruction. This is sufficient for him to acquire skill in electronic drafting of professional

quality. Course TD4 contains lettering, handling instruments, basic pencil and ink drawing, dimensioning, orthographic projection, and isometric drawing.

E4 — English. This review is designed to assist the technical student to express himself clearly and concisely, and to improve his ability to write on technical subjects. The following subjects are covered: vocabulary building, grammar review, punctuation, capitalization and abbreviation, effective writing, business letter writing.

PS4 — Pulse Systems I. Here the student begins the study of special purpose pulse generating and shaping circuits used in practically all television and industrial electronic equipment. Circuits studied are artificial lines, delay circuits, introductory radar, and the mathematical and graphical analysis of timing circuits.

M4 — Trigonometry. Trigonometry has many applications in electronics; however, the immediate applications in this subject are to solve problems in alternating current circuits. Later applications will include such operations as radar tracking, gun sighting, navigation, etc. Selected topics for study include radians, vectors, functions, graphs of functions, identities, etc.

TV4 — Television Transmission. Television transmission systems, B-W and Color, are studied in detail from the pickup camera to the transmitting antenna. The subject includes: station organization, physical layouts, live and film cameras, special effects equipment, lighting, lenses, studio console equipment, TV transmitters, advanced antenna theory, commercial VHF and UHF antennas, and the theory of wave propagation at VHF and UHF.

LP4 — FCC License Preparation. This subject consists of 60 hours study in preparation for taking the First Class Radiotelephone Operator's license issued by the Federal Communications Commission. The license is required for responsible operation of all AM, FM and TV commercial broadcast transmitters. Graduation at the end of semester IV or semester VI requires that the student successfully pass the FCC exam and obtain this license. The Study Guide issued by the FCC is used to prepare for the exam.

SEMESTER IV (B)—ERTT

SP4 — Radio and Television Studio Production. This is a laboratory course of 120 hours devoted to the operation of modern television studio equipment, audio control room equipment, recording sound on tape, keeping program logs, announcing, program production, operating film broadcasting equipment, studying the effects of camera angles, lenses, studio lighting, etc. Completion qualifies the student to perform as a studio technician, control room operator or a transmitter engineer at a commercial AM, FM or TV station.

Other subjects in Semester IV (B) are the same as described in Semester IV (A). The SP4 course above is provided in lieu of PS4 and M4, and is only for those students who wish to terminate their education at the end of four semesters to enter commercial broadcast employment.

Students who successfully complete Semester I, II, III and IV (B) are awarded a diploma in "Radio and Television Broadcast Technology."

SEMESTER V— ERTT

PS5 — Pulse Systems II. A continuation of the concepts of pulse circuitry, and their applications to radar modulators using networks, switching devices, line-pulsing methods, etc. This is followed by a thorough study of radar indicators such as cathode-ray tubes, sweep-voltage circuits, and sweep-current circuits. Radar antennas and complete transmitting-receiving systems are studied.

TD5 — Technical Drafting II. Further application of drafting techniques to the preparation of electronic schematics. The advanced work includes: reading engineering drawings, auxiliary views, revolved views, sectional views and conventional representation, intersection and development of surfaces, isometric, oblique and perspective.

MW5 — UHF and Microwave Techniques I. A review of basic principles relating to transmission lines, and a study of impedance matching using line sections as circuit elements. This is followed by introduction of the circle diagram as a means of solving line problems, the single and double-stub tuners, characteristic resistance, propagation speed, and attenuation.

TO5 — Television Optics. Many principles of physics are integrated throughout this two-year curriculum; however, since the laws governing the behavior of light form the basis for so much study in television, microwaves and wave propagation, this separate advanced subject is offered. Emphasis is placed on the light spectrum, units of measurement, the laws and equations governing lenses and mirrors, optical instruments, photometry, television mirror assemblies, dichroic mirrors, diplexing units, etc.

TR5 — Technical Report Writing. This subject is offered to provide the student the opportunity for a concentrated study in a specific field of electronics, then to prepare a written report of his findings. After choosing his subject, the student outlines his proposed work, prepares illustrations, photographs, slides or demonstration models. Then, he writes his paper under faculty supervision but with a minimum of technical assistance.

LR5 — Library Research. This subject is companionate with technical report writing (TR5), but is separate to allow emphasis on the proper use of the Institute's library, the Kansas City Public Library, and the Linda Hall Scientific Library located on the campus of the University of Kansas City. The student learns how to compile data from standard textbooks, reference works, technical periodicals, and engineering bulletins. Field trips are made to the Linda Hall library.

M5 — Calculus I. By applying the mathematical principles of calculus to electronic engineering problems, the student finds a new understanding and appreciation. This first course introduces the basic concepts of variables, limits, theorems, and applies the elementary principles of calculus. Derivatives are studied and applications are made to curve tracing, maximum and minimum. Differential formulas and operations are covered and signal voltages are resolved into sinusoidal components by the use of Fourier analysis.

SEMESTER VI — ERTT

IR6 — Industrial Relations. A general discussion of the structure and practices of industrial business organizations. Employment orientation is an important feature of this subject. The student is instructed in the essentials

of good grooming, proper business manners, personality development, etc. Also included are discussions on employee benefits, labor relations, the obligations of an employee to his employer, the economics of business, and the responsibilities of management to labor.

TD6 — Electronic Drafting. The drafting skills acquired in previous semesters are applied with special emphasis to the development of electrical and electronic schematic diagrams. The student is given assignments in the analysis of complex commercial electronic equipment and makes complete sets of production drawings, including final draft and specifications.

MW6 — UHF & Microwave Techniques II. A comprehensive mathematical and theoretical study in this important area of modern electronics, with practical applications on the aspects ordinarily encountered by Engineering Technicians. The subject matter includes an advanced treatment of waveguides, resonant lines and cavities, klystrons, magnetrons, and electromagnetic field theory. Tuning and coupling for complete VHF transmitting and receiving systems is included, plus a study of the instruments for making microwave measurements.

TS6 — Telemetering and Servomechanisms. A study of remote control systems and indicators is essential in the education of an Electronic Engineering Technician. This subject provides a practical and analytical understanding of simple synchros, related error detectors, modulators and demodulators, networks, magnetic amplifiers, rotating amplifiers, applications, adjustment and trouble shooting in servomechanism systems.

TE6 — Test Equipment & Measurements. A lecture and demonstration course in the analysis of precision commercial test equipment and its applications for making sensitive laboratory measurements. Instruments commonly used by Engineering Technicians are included, such as: Q meters, vacuum tube voltmeters, bridges, sweep generators, precision RF and AF oscillators, laboratory oscilloscopes, output indicators, electronic switches, etc. Binary arithmetic and other subjects basic to analog and digital electronic computers are studied.

ML6 — Measurements Laboratory. This lab course parallels and is taken in conjunction with TE6. Laboratory test cells are provided with complete equipment set-ups for the student to obtain practical experience in the use of precision measuring equipment. Experiments are performed on the following: the IBM binary circuit experimental kit for constructing and testing the basic circuits of a large digital computer, a microwave training kit with a Klystron microwave transmitter and detection system, remote position indicators, light optics, radar altimeter, Q meter, transistor circuits, etc.

M6 — Calculus II. This final study of calculus includes the theorems relating to integrals, the definite integral, area under a curve, derivatives of trigonometric functions, the infinite series, the binomial series and ordinary differential equations. Calculus and engineering are inseparable. The Engineering Technician cannot neglect this important subject in his career preparation; however, the feature of this course is that it is designed to illustrate the many applications of calculus to practical electronic engineering.

The Station Agent must be qualified in many phases of airline operations.

APT

Curriculum For Airline Personnel Training

12 Weeks — One Quarter

Symbol	Subject	Total Hours
AT	Air Transportation, general	30
RD	Airline Routes and Designators	20
AG	Airline Guide	20
TE	Telephone Technique	20
RP	Reservations Procedures	20
TA	Airline Tariff-Ticketing	40
TP	Teletype Operating Procedures	10
TF	Teletype Equipment Familiarization	10
RO	Ground Radio Operating Procedures	20
CP	Communications Circuit Practice	20
ME	Meteorology (Men Only)	30
AO	Airline Operations (Men Only)	40
PD*	Personal Development (Women Only)	40
TT*	Typing-Teletype Practice	40
RT	Reservations-Ticketing Practice	40
	Total	360

*Women students receive 30 hours additional instruction in teletype and Personal Development instead of Meteorology and Airline Operations.

APT

Airline Personnel Training

12 Weeks — One Quarter

FOR MEN AND WOMEN

This is a comprehensive airline training course designed to prepare the student for several specialized, non-technical airline positions.

Men and women are trained for such positions as transportation agent, reservations sales agent, reservations control agent, teletype communicationist,

radiophone communicationist, tour specialist and passenger service agent. In addition, men students train for such job classifications as station agent, ramp agent, cargo agent, weather observer and airline flight attendant *(steward)*. Women students are also prepared for positions as ground hostess and those who meet the qualifications may obtain specialized Air Hostess *(stewardess)* training at no additional cost during the final four weeks. Admission to the Hostess Training class cannot be confirmed until the student has been interviewed by an official of the Institute at resident school.

Emphasis is placed on the practical application of knowledge gained in the classroom. The student learns by doing. This is accomplished through the simulation of realistic airline operations on Central's mythical airline, "Central Airways." In practice work, students use regular airline forms and procedures to prepare them to assume their airline duties with a minimum of company indoctrination.

Women enrolled in this course will receive additional typing and teletype training and instructions in Beauty and Personal Charm *(Personal Development)* in lieu of meteorology and airline operations subjects. Men students receive an Aeronautical Weather Observer's Course as a part of Meteorology. The objective of this Course is to qualify a graduate to take the Weather Bureau examination for certification without undergoing additional company training.

The Weather Observer's Course consists of thirty hours of classroom and field instruction. The rules for making weather observations are studied and students learn to use regulation weather bureau instruments and forms. Practice observations are made and the results are checked by comparing them with the official hourly observations of the local U. S. Weather Bureau.

An applicant for this APT course must be a high school graduate, and capable of passing a normal physical examination. He *(she)* must have a pleasing personality and good appearance. Upon satisfactory completion of this course, the student will be awarded a graduation certificate.

Description Of Subjects For Airline Personnel Training

APT

AT—Air Transportation, General. An introduction to commercial air transportation. History and development of the commercial airlines, equipment used, safety regulations, airline organization, and various airline departments and personnel categories. The future of air transportation.

RD — Airline Routes & Designators. A study of basic geography including the location of states, principal cities, and the route structure of local service and trunk airlines. Airline connections between key airline cities is stressed. Standardized abbreviations and designators used throughout the commercial airline industry.

AG — Airline Guide. This subject acquaints the student with the contents and proper use of the Official Airline Guide — the monthly publication that contains airline schedules, fares and other travel and flight information.

TE — Telephone Technique. Proper use of the telephone in handling various types of telephone calls. The student learns the importance of good telephone technique and good telephone manners. The sales potential of the telephone and its importance to the airline is stressed. Includes speech and voice development.

RP — Reservations Procedures. The student learns how to use the reservation card while talking with the passenger. Familiarization with standard interline message procedures, including the commonly used codes and abbreviations. Reservations facilities in various size offices are studied as are reservations space control forms and procedures.

TA — Airline Tariff-Ticketing. The student concentrates on a study of the Official Airline Tariff — the publication containing the authorized fares and the rules and regulations governing air travel. Emphasis is placed on the most common rules and use of the tariff to determine proper fares for on-line and interline travel. Students are taught how to issue tickets to passengers on approved airline forms.

TP — Teletype Operating Procedures. A study of the different kinds of teletype circuits and circuit terms. The proper routing of messages in various types of airline circuits and other aspects of teletype circuit operation. Students also learn to read coded tape.

TF — Teletype Equipment Familiarization. Explanations of the various manual and automatic teletype systems and associated equipment used by commercial airlines, such as the 81D1, SCATS, TADS, 83 and WU54. Students learn the components and function of the Type 19 ASR teletype machine.

RO — Ground Radio Operating Procedures. Using the Aeronautical Radio Incorporated (AIRINC) manual as a guide, students are taught the principles of ground radio operating and standard procedures for handling and logging incoming and outgoing radio contacts with aircraft. Standardized codes and abbreviations and air route traffic control procedures are also covered.

CP — Communications Circuit Practice. Handling typical airline ground radio communications including messages to and from planes in simulated circuit practice on the Institute's mythical airline, "Central Airways." Students copy and log all traffic sent or received.

ME — Meteorology. The purpose of this subject is to teach the student to read and understand winds aloft, weather sequence reports, and forecasts and to qualify as a Certified Weather Observer. Rules applicable to Weather Bureau supplementary weather observing are studied. Practice work consists of making actual observations using standard Weather Bureau instruments, equipment and forms. This subject is for men only.

AO — Airline Operations. A study of Air Mail, Air Express and Air Freight procedures, including correct use of government forms. Also, Weight and Balance systems, Load Computation, Ramp Procedures, and Flight Control. Students obtain considerable practice in using various airline ground operations forms. This subject is for men only.

PD — Personal Development. All women students take this subject in lieu of Airline Operations and Meteorology. This is a thorough course in Beauty, Personal Charm, Poise, and Personality Development, including classroom demonstrations and practice.

TT — Typing-Teletype Practice. Practice in touch typing and the operation of commercial airline communications teletype equipment. Also includes simulated circuit practice using authentic airline messages.

RT — Reservations-Ticketing Practice. The handling of incoming and outgoing reservations calls, the recording of space, and the actual ticketing of passengers on Central's mythical airline, "Central Airways." Students are monitored and graded on their telephone calls. Regular airline tickets and forms are used by students in their practice work on "Central Airways" ticket counters.

Curriculum For Basic Radio -- Television Course

BRT

Accredited by the Engineers' Council for Professional Development as an Engineering Technician Program

This is a program of part-time evening instruction, available in Kansas City only, and requires the equivalent of four semesters *(1800 hours)* to complete. Classes meet for 7½ hours per week. Students may enter at frequent intervals, and may transfer their work to the day course in Electronics, Radio and Television Technology with full credit toward the Associate of Science degree.

The curriculum for the first three semesters of this course is the same as for Electronics, Radio and Television Technology. During the final 180 hours, the subjects studied are: Television Transmission *(TV4)*, Radio and TV Studio Production *(SP4)*, and FCC License Preparation *(LP4)*. Each of these subjects is described elsewhere in this Section.

Curriculum For Electronic Technician Course

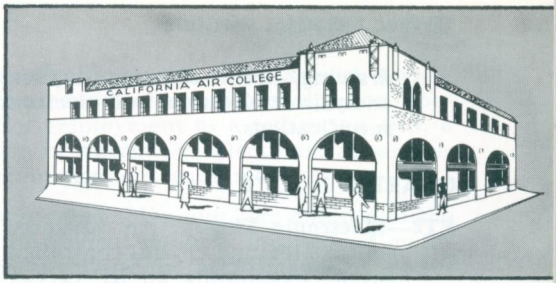
ETC

48 Weeks — 4 Quarters

	Symbol	Subject	Hours per Week Lecture	Laboratory
Quarter I 12 Weeks	BR1	Basic Radio Theory	15	
	AM1	Applied Mathematics I	5	
	ED1	Electronic Drafting		10
		Totals	20	10
Quarter II 12 Weeks	ET2	Electronic Theory	15	
	AM2	Applied Mathematics II	5	
	EL2	Electronic Laboratory I		10
		Totals	20	10
Quarter III 12 Weeks	TC3	Television Circuit Theory	15	
	AM3	Applied Mathematics III	5	
	EL3	Electronic Laboratory II		10
		Totals	20	10
Quarter IV 12 Weeks	AE4	Advanced Electronics Theory	15	
	AM4	Applied Mathematics IV	5	
	EL4	Electronic Laboratory III		10
		Totals	20	10

Classes are in session six hours per day, five days per week. Each class day is divided into three hours theory lecture-demonstration, two hours drafting or laboratory, and one hour mathematics.

Each of the above subjects is described in this Section.



The California Air College, Central's West Coast Branch School.

ETC Electronic Technician Course

This training program is post-high school level, and designed to prepare a high school graduate for employment as an electronic technician in the shortest possible time. A diploma is granted upon successful completion of this 48 week, four-quarter course, offered only at Central's branch school in Los Angeles.

A feature of this course is that it provides for an "Alternating Study-Work" schedule whereby the student may obtain a leave of absence from the school after the second quarter for the purpose of engaging in employment. After working in industry for twelve weeks, he will resume full-time study for the third quarter, then a second leave may be granted between the third and fourth quarters. A total of 18 months is required for completion if the student elects to pursue the alternating study-work schedule. A Deferred Tuition Plan is also available for students needing additional financial assistance.

The recent tremendous expansion of the electronics industry and the shortage of supporting technical personnel have encouraged the Institute to develop and offer this "streamlined" course for training electronic technicians. It is designed to offer a maximum of graduate opportunity in a minimum of training time. The course is properly balanced in electronic theory, drafting, mathematics and laboratory practice. With 1,440 hours instruction, the student is well-prepared to assume full time employment in electronics.

ETC Description Of Subjects For Electronic Technician Course

QUARTER I — ETC

BR1—Basic Radio Theory. Beginning with the Electron Theory, this subject includes a thorough study of basic electrical laws, electronic components, vacuum tubes, power supplies, detection, oscillation and amplification circuits, the design of radio receiver circuits, loudspeakers, and the use of transistors in electronic circuits.

AM1—Applied Mathematics I. Basic mathematical functions are reviewed to enable the student to perform the calculations associated with a study of fundamental electrical laws and electronic components. Applications are made of the following math functions: decimals, fractions, square root, ratio, proportion, powers of ten, and use of the slide rule.

ED1—Electronic Drafting. In this subject the student receives a total of 120 hours instruction in basic drawing techniques and drafting for electronics. Progressively, the course includes: lettering, handling instruments, basic pencil drawing, basic ink drawing, dimensioning, isometric

drawing, circuit drawing, duplication of electronic drawings, layout and analysis of electrical and electronic schematics, including final draft and specifications.

QUARTER II — ETC

ET2—Electronic Theory. An advanced study of electronic circuits such as self-excited and crystal-controlled oscillators, buffer amplifiers, neutralization, modulating an RF carrier wave, Class A, B, and C amplifiers, and matching RF impedances. This is followed by a series of lessons on wave-shaping and wave-control circuits, multivibrators, oscilloscope design, dynamic tube performance and other related subjects essential for a fundamental understanding of television circuitry.

AM2—Applied Mathematics II. A review of algebra including multiplication and division, factoring, fractional equations, series and parallel circuits, the Wheatstone Bridge, powers, roots, and radicals. These selected algebraic functions are applied to the problems in electronic theory being covered during this quarter.

EL2—Electronic Laboratory I. Each student is issued a laboratory manual and several kits of equipment to conduct experiments proving the basic laws of electricity and electronics. The student then constructs a multi-range circuit tester, audio amplifiers, detectors, and a complete superheterodyne radio receiver. Experiments are also performed using transistors as audio frequency amplifiers.

QUARTER III — ETC

TC3—Television Circuit Theory. The principles of scanning, oscilloscopes, and a comprehensive study of cathode ray tubes constitute the preliminary topics in this subject. After the standard NTSC television signal is studied, the course continues into video amplifiers, synchronizing circuits, deflection circuits, power supplies and TV amplifiers. At the conclusion, there is a detailed study of FM detectors, receivers and pulse timing systems.

AM3—Applied Mathematics III. This study of algebra includes logarithms, decibels, fundamental trigonometry and complex numbers. These areas of mathematics are applied to practical problems dealing with antennas, transmission lines, FM modulation, TV circuit formulas, and vacuum tube characteristics.

EL3—Electronic Laboratory II. Additional kits of tubes, electronic components and mounting chasses are issued to each student and he constructs a complete five-inch oscilloscope. He then builds a square wave generator and experiments with triode wave-shaping circuits, tests the frequency response of amplifiers, plots dynamic tube and transistor characteristics, constructs clipper and multivibrator circuits, etc. After building the multivibrator oscillators, he generates television scanning rasters and TV test patterns on the oscilloscope screen.

QUARTER IV— ETC

AE4—Advanced Electronic Theory. This subject extends the coverage of electronic theory into the areas of UHF, VHF, wave propagation, servomechanisms, and a comprehensive study of precision test equipment. These

subjects are studied with a mathematical analysis as well as with a view toward practical applications in commercial electronics equipment. Specifically, the student is prepared for employment as a technician with a company engaged in the production of microwave electronic apparatus, computers, control devices, or communications equipment.

AM4—Applied Mathematics IV. The study of complex numbers and use of the J-operator is expanded to enable the student to apply this area of mathematics to the solution of problems involving the performance of microwave generators, remote control indicators and controls, the many problems associated with antennas and transmission lines, impedance matching in UHF equipment, and other complex sine wave circuits.

EL4—Electronic Laboratory III. A series of laboratory projects which include construction and test of: printed circuits as used in vacuum tube and transistor circuitry, printed circuit soldering and component installation techniques, plotting dynamic characteristic curves of transistors, transistor generators, transistor pulse shapers, and application of precision test equipment.

If the student wishes to obtain a Second or First Class Radiotelephone Operator's license, an FCC study guide and manuals to prepare for the FCC examination will be issued upon request. The instructor will provide private coaching as needed after regular school hours.

Electronic technicians are needed for the installation, maintenance, and operation of aviation radar, radio, and numerous electronic control mechanisms.
—Trans World Airlines photo

Central technical home study students build (and keep) many items of electronic test equipment. Here a Central student is engaged in checking the circuit of a superheterodyne radio receiver utilizing a multi-tester and oscilloscope.

HOME STUDY COURSES

SECTION 4

In the Home Study Division of the Institute, courses are offered to prepare young men and women for careers in electronics or specialized positions with the commercial airlines. All home study is serviced from the main office of Central Technical Institute in Kansas City.

Candidates may apply for admission by mail or with an authorized Regional or District Registrar. The required initial payment must accompany the application. After reviewing the candidate's qualifications, the Registrar in Kansas City will notify the student of his acceptance or rejection. If accepted, the first group of lessons and other study material will be mailed immediately along with complete instructions to enable the student to begin his study with no loss of time. If rejected, the initial payment to the Institute will be refunded in full to the applicant.

Courses Offered

1. MASTER RADIO, TELEVISION AND ELECTRONICS TRAINING Code: RTE

This is a program of home study requiring the equivalent of four semesters, plus eight weeks of resident instruction at the Institute in Kansas City. It leads to a diploma upon successful completion and is ACCREDITED by the Engineers' Council for Professional Development as an Engineering Technician program. It is also ACCREDITED by the National Home Study Council. The close correlation between this course and Central's accredited resident curriculum titled "*Electronics, Radio and Television Technology*" permits convenient transfer from Home Study to Full Resident training, particularly at the semester divisions. Credit toward Central's Associate of Science degree is allowed for all correspondence work satisfactorily completed.

This RTE course contains 112 lessons, 4 radio mathematics texts, preparation for a First Class FCC Radiotelephone license, and over 300 items of parts and electronic components to conduct 78 experiments at home. Approximately 18 months is required for completion. The course is fully approved for Korean Veterans under Public Law 550.

2. RADIO AND ELECTRONICS COURSE Code: RE

The objective of this vocational course is to prepare young men for (1) Radio receiver servicing (2) a Second Class FCC Radiotelephone license, or (3) advanced electronic study in television, UHF, micro-waves, radar, etc. This RE course is available for non-high school graduates who desire to pursue a vocational type training in the electronics field. The course consists of 57 lessons, FCC license preparation material and 10 kits of laboratory equipment with which to construct basic electrical experiments, a multi-range circuit tester, power supplies and radio receiving circuits. All equipment remains the property of the student. There are

a total of 49 experiments. Upon satisfactory completion of the RE course, a student may transfer into resident school, beginning at Semester 3 of the Electronics, Radio and Television Technology course described in Section III of this Bulletin. This course is fully approved for Korean Veterans under Public Law 550.

3. AIRLINE CAREER TRAINING — Code: ACT

As the title implies, this course provides the educational and practical training for men and women to prepare for a career with the commercial airlines in positions such as a Reservationist, Flight Attendant, Station Agent, Ticket Agent, Communicationist, etc. Special training at no additional cost is provided for qualified girls if they wish to apply for employment as an Airline Hostess. This is a combination home-study and resident program, consisting of 46 lessons to be completed at home, plus 4 weeks of resident school training at Kansas City, Hartford, or Hollywood.

This ACT course is ACCREDITED by the National Home Study Council. Approximately six months is required to complete. Women enrolled in this course will receive instructions in Beauty and Personal Charm. The Atlantic Airline and Electronics School, Ltd., *(an associate of Central Technical Institute)* offers this Airline Career Training course for residents of Canada. The school is registered under the Trade Schools Regulation Act of 1938 in Ontario, Canada.

4. AIRLINE STATION AGENT TRAINING — Code: ESAO

A program of home study for men, approved for Korean Veterans under Public Law 550, and designed specifically for the young man who wishes to prepare for employment with a commercial airline, but cannot arrange to leave his home or job to attend resident school. The course consists of 43 assignments and is completed entirely by correspondence. Special emphasis is placed on training in Airline Operations which includes duties such as handling air mail, freight, and express, operating radio circuits, controlling airways traffic, making weather observations, computing aircraft weight and balance, directing ramp procedures, etc.

Approximately six months is required to complete the ESAO course.

NOTE: A description of the subjects contained in each of the above courses appears later in this Section.

Tuition For Home Study Courses

	COURSE			
	RTE	RE	ACT	ESAO
Cash Tuition	$350	$275	$345	$220

Low down payment and monthly terms are available for all courses. See the various payment plans listed on the Enrollment Application for the particular course involved, a copy of which will be mailed upon request.

The tuition quoted above is all-inclusive; there are no additional charges for postage, equipment, lessons, notebooks, consultation service, resident school training *(if a part of the course)*, or graduate Placement Service. If the home study course pursued includes terminal training in resident school, transportation and living expenses while in resident school are not included in the tuition.

Veterans enrolling in any of the courses approved under Public Law 550 will make the initial and monthly payments to the Institute in the normal manner, then will be reimbursed by the Veterans Administration every three months on the basis of the number of lessons completed. Final reimbursement upon completion of the course will cover the entire tuition. Veterans must supply the Institute a "Statement of Previous Education and Training" along with the Enrollment Application. Appropriate credit will be allowed for previous training after evaluation by achievement examinations.

The Institute reserves the right to withdraw or change the tuition for any course listed in this Bulletin at its discretion, without prior notice.

Refund Of Unused Tuition

The Institute maintains the policy that a home study student should not be obligated to pay for a course in full, if, after enrolling he is compelled to interrupt or discontinue training. For that reason, tuition for all home study courses is charged on the basis of service rendered and refunds will be made of tuition paid in excess of the amount earned by the Institute. At the time of discontinuance, the amount due the Institute is computed by adding a monthly service charge of 10% of the total tuition to a registration fee which will vary from 20% to 30%, depending upon the particular course. For specific registration and monthly service charges, see the Enrollment Application for that course. No refund of tuition is made if, upon completion of the home study training, the student fails to take advantage of the terminal resident training when he is enrolled for a "combination home study-resident" course. In Canada, a student is not charged tuition in excess of that due for the current quarter in which he is studying.

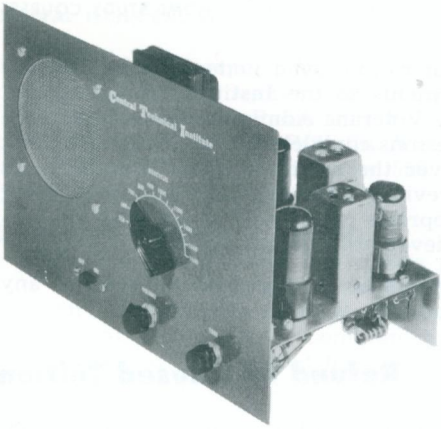
Curriculum For Master
RTE Radio, Television and Electronics Training

This is a combination home study and resident program of instruction ACCREDITED by the Engineers' Council for Professional Development as an Engineering Technician curriculum. The course requires the equivalent of four semesters of resident study. All except eight weeks may be completed by correspondence, then the student must attend resident school in Kansas City. A diploma is awarded upon successful completion.

The close correlation between this course and Central's accredited resident curriculum titled "Electronics, Radio and Television Technology" permits convenient transfer from home study to full resident training, particularly at the semester divisions. Credit toward Central's Associate of Science degree is allowed for all home study work satisfactorily completed. The average completion time for the correspondence portion of this course is 18 months.

SEMESTER I — Basic Electronics — RTE

During this semester, the student will receive the 30 lessons listed below under Unit 1, the 10 lessons listed under Unit 2, six kits of laboratory equipment with which he will perform 26 experiments, and two radio mathematics texts containing instructions for review of the basic operations necessary for a comprehensive understanding of electricity and electronic theory. The subject material of Semester I includes a study of basic electrical laws, theory of vacuum tubes, electronic circuit components, power supplies, detectors, amplifiers *(AF and RF)*, oscillators,



Transistor experiments are performed with this superheterodyne radio receiver.

radio receiver circuitry, the theory and use of transistors, radio service instruments and the techniques of trouble shooting in radio sets. If the student desires to transfer to resident school upon completion of this semester, he will be allowed credit for 18 weeks, or one full semester of resident school study.

LESSON TITLES:

Unit One:

1. Your Future in Electronics
2. The Electron Theory
3. Fundamental Definitions
4. Ohm's Law and Its Applications
5. Electronic Circuits
6. Electrical Voltages and Currents
7. Vacuum Tube Theory
8. Magnets and Electromagnetism
9. Principles of Electronic Communications
10. Transformers and Inductors
11. Electrostatics and Capacitors
12. Electronic Circuit Components
13. Vacuum Tube Characteristics
14. Alternating Current Circuits
15. Resonant and Filter Circuits
16. Construction of Batteries
17. Power Supply Rectifier Circuits
18. Design of Meters for Radio Use
19. Vacuum Tube Detectors
20. Audio Frequency Amplifier Circuits
21. Grid Bias by Resistance
22. Tuning Circuits
23. Regeneration and Vacuum Tube Oscillators
24. Radio Frequency Amplifier Circuits
25. Screen Grid and Pentode Tubes
26. Methods of Volume and Tone Control
27. Superheterodyne Receivers
28. Audio Power Amplifiers
29. Loudspeakers
30. Multi-Element Tubes—Transistor Theory

Unit Two:

1. Fundamental Service Instruments
2. Signal Generators, Vacuum-Tube Voltmeters, Oscilloscopes
3. Receiver Circuit Analysis
4. All-Wave Receivers
5. Alignment Procedure
6. Signal Tracing
7. Servicing of Special Receivers
8. Interference Elimination
9. Public Address Systems
10. The Business Side of Servicing

HOME LABORATORY EXPERIMENTS:

BE Group

1. Practice Soldering and Use of Tools
2. Assemble Instrument Test Leads
3. Resistive Circuits—Series
4. Resistive Circuits—Parallel
5. Resistive Circuits—Series Parallel
6. Investigate and Plot Magnetic Field Patterns
7. Construct a Simple Magnetic Circuit
8. Experiment with Electromagnetism
9. Inductive Circuits and Alternating Currents
10. Operation of Transformers
11. Capacitive Circuits and Alternating Currents
12. Series and Parallel Resonant Circuits

ME Group

13. Construct a DC Voltmeter
14. Construct an AC Voltmeter
15. Construct a Milliammeter
16. Construct an Ohmmeter

MA Group

17. Practice Application of the Voltmeter
18. Kirchhoff's Laws
19. Alternating Current Circuits
20. Principle of the AC Generator
21. Measuring Capacitance

PS Group

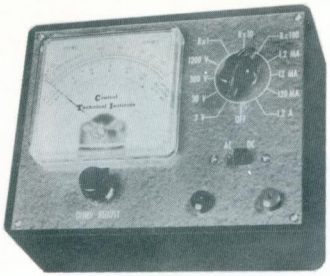
22. Test and Assemble Power Supply Components
23. Construct a Complete Power Supply
24. Measure Voltage Regulation Characteristics
25. Testing for Hum or Ripple
26. Investigate the Operation of Voltage Dividers

RADIO MATHEMATICS:

Decimals and Fractions
Ohm's Law
Square Root
Ratio and Proportion
Powers of Ten
Use of Slide Rule
Reactance Problems
Basic Algebra
Audio Power Problems
Review Problems

SEMESTER II — Advanced Electronics — RTE

The student receives 25 lessons in this semester, four additional kits of equipment to perform 23 more experiments, and two radio mathematics texts which continue his study of math into the areas of trigonometry and polar coordinates. The lesson titles are identified below in Units 3 and 4. In Unit 3, the principal study concerns the advanced electronic circuits used in generating, amplifying and radiating radio waves. Motors and generators are studied as a source of power for radio transmitters, as well as the different types of vacuum tube power supplies. In Unit 4, the lessons are devoted to a study of the studio equipment used in commercial broadcast stations, and the principles of FM transmitters and receivers as used in most two-way communications systems. Transfer to resident school will be permitted at the end of this semester; the student will be allowed a total of 36 weeks *(two semesters)* credit for his correspondence work providing his grades in theory, math and laboratory are satisfactory.



Building this volt-ohm-milliameter circuit tester is one of the first assignments given to technical home study students.

LESSON TITLES:

Unit Three:

1. Vacuum Tube Oscillators
2. Crystal Controlled Oscillators
3. Buffer Amplifiers-Neutralization
4. Matching Impedances
5. Fundamental Modulation
6. Class A and B Amplifiers
7. Class C Amplifiers
8. DC Motors and Generators
9. AC Motors and Generators
10. Power Tubes, Plate and Filament Supplies
11. Class B RF Linear Amplifiers
12. Parasitic Oscillations
13. Grid Modulation
14. Maintenance of Batteries
15. Applied Algebraic Principles

Unit Four:

1. Transmitter Circuit Components
2. Decibels and Microphones
3. Pads and Line Equalizers
4. Speech Input Equipment
5. Antennas and Transmission Lines
6. Low Powered Transmitters
7. Frequency Modulation Definitions
8. FM Receiver Principles
9. FM Detectors
10. FM Communications Equipment

HOME LABORATORY EXPERIMENTS:

FE Group

1. Measure the Characteristics of Diode Vacuum Tubes
2. Plot Characteristics Curves for Triode Vacuum Tubes
3. Construct a Simple Triode Amplifier
4. Measure the Characteristics of Pentode Vacuum Tubes
5. Construct a Simple Pentode Amplifier Circuit
6. Cathode Bias Circuits
7. Grid Leak Bias Circuits
8. Construct a Radio Frequency Oscillator
9. Measuring the Frequency of Oscillation
10. Construct an Audio Frequency Oscillator

RE Group

11. Construct an Audio Frequency Power Amplifier with Loudspeaker
12. Construct an Audio Voltage Amplifier
13. Construct a Diode Detector
14. Construct a Grid Bias Detector
15. Construct a Grid Leak Detector
16. Construct a Regenerative Detector
17. Construct a Complete Superheterodyne Broadcast Receiver
18. Aligning the Receiver
19. Trouble Shooting the Receiver

TR Group

20. Measure the Characteristics of Transistors
21. Construct a Transistor Audio Amplifier
22. Construct a Transistor I-F Amplifier
23. Construct a Transistor Mixer-Oscillator

RADIO MATHEMATICS:

Logarithms
Decibel Problems
Antenna Calculations
Plane Vectors
Vectors in AC Circuits
Modulation Problems
Motor Generator Problems
Trigonometry
J-Operator
Polar Coordinates
Rotating Vectors

SEMESTER III — Television Theory and Servicing — RTE

This semester is comprised of 38 lessons divided into five Units to provide a comprehensive study of television, ultra-high frequencies, and wave propagation. In addition, the student will construct 29 laboratory experiments designed to assist him in his related study of oscilloscopes, sweep circuits, wave generators, limiters, wave-shaping circuits, clippers, multivibrators, test patterns, etc., all directly associated with television theory and servicing. The color TV signal and the methods of making precision adjustments on color receivers is explained in the Unit Seven section of this semester. Advanced theory in the fields of magnetrons, klystrons, VHF impedance matching and electromagnetic field theory is presented in Unit Eight, then in Unit Nine the principles of antennas and radiation systems are covered. Fifty-four *(54)* weeks credit is allowed if the student desires to transfer at the end of this semester to resident school to complete his work toward an Associate Degree. This is equivalent to three semesters of resident school study in "Electronics, Radio and Television Technology."

LESSON TITLES:

Unit Five:

1. Introduction to Pre-Television Electronics
2. Oscilloscope Techniques
3. Capacitance and R-C Circuits
4. Inductance and Resonant Circuits
5. Diode Circuit Applications
6. Triode and Pentode Dynamic Operation
7. Gas-Triode and Blocking Tube Oscillators
8. Multivibrators

Unit Six:

1. Fundamentals of Television
2. Cathode Ray Tubes
3. Principles of Scanning
4. The Television Signal
5. Video Amplifiers
6. Synchronizing Circuits
7. Vertical Deflection Circuits
8. Horizontal Deflection Circuits
9. Television Power Supplies

Unit Seven:

1. TV Receiver RF and IF Amplifiers
2. TV Test Equipment
3. TV Receiver Installation
4. TV Receiver Servicing—Part One
5. TV Receiver Servicing—Part Two
6. Fundamentals of Color Television
7. The Color TV Signal
8. Color TV Receivers

Unit Eight:

1. Review of Sine-Wave AC Circuits
2. Standing Waves on Transmission Lines
3. Transmission Line Sections as Circuit Elements
4. Impedance Matching and RF Plumbing
5. Electromagnetic Field Theory
6. Waveguides and Cavity Resonators
7. Negative-Grid Tubes at VHF and UHF
8. Microwave Generators
9. Microwave Measurements

Unit Nine:

1. Advanced Antenna Theory
2. Directive Antenna Systems
3. Commercial VHF and UHF Antennas
4. Propagation of Waves at VHF and UHF

HOME LABORATORY EXPERIMENTS:

OS Group

1. Construct a Power Supply for Oscilloscope
2. Testing the Scope Power Supply
3. Operating the Cathode-Ray Tube
4. Construct the Vertical Deflection Amplifier
5. Test the Vertical Deflection Amplifier
6. Construct the Horizontal Deflection Amplifier
7. Test the Horizontal Deflection Amplifier
8. Construct the Linear Sweep Generator
9. Test the Linear Sweep Generator
10. Practical Application of the Oscilloscope

TV Group

11. Construct a Square-Wave Generator
12. Transients in R-C Circuits
13. Transients in R-L Circuits
14. Ringing (R-L-C) Circuits
15. Plot Dynamic Characteristics of Diode Tubes
16. Diode Limiter Circuits
17. Diode Clamping Circuits
18. Plot Dynamic Characteristics of Triode Tubes
19. Cathode-Followers
20. Triode Waveshaping Circuits
21. Plot Dynamic Characteristics of Pentodes
22. Pentode Clipper Circuits
23. Frequency Response of Amplifiers
24. Transistor Circuits
25. Construct Plate-Coupled Multivibrator
26. Construct Cathode-Coupled Multivibrator
27. Construct a Sawtooth Generator
28. Generate Television Type Scanning Rasters
29. Generate Television Test Patterns

SEMESTER IV — Television Broadcasting — RTE

Nine assignments are made in this semester, each from the latest textbook "Television Broadcasting" by H. A. Chinn, Chief Engineer, A-V Division, Columbia Broadcasting System. Film projectors, remote pickup equipment and

the techniques of producing television shows are studied in detail. Successful completion of these lesson assignments qualifies the student to enter resident school for his laboratory practice to complete the semester's work and graduate. If he desires, he may remain in resident school and complete all work necessary for his Associate Degree in 38 weeks following graduation from this course.

ASSIGNMENT TITLES:

1. Introduction to TV Broadcasting
2. Live Pickup TV Camera Chain
3. Remote Pickup Equipment and Practices
4. Television Synchronizing Generator
5. Auxiliary TV Studio Equipment
6. Film-Pickup TV Camera Chain
7. Television Projectors
8. Television Transmitters
9. TV Broadcast Test Equipment

LABORATORY PRACTICE:

This portion of the course is completed in Central's modern laboratories in Kansas City. If the student is unable to come to Kansas City, he will be given a certificate confirming the portion of the course satisfactorily completed, but he cannot be awarded a diploma. In resident school, during the eight weeks terminal training, the student will operate live image-orthicon cameras, video monitoring and switching equipment, television film projectors, tape recorders, commercial broadcast transmitters, studio consoles, and many other pieces of equipment to become fully prepared for employment in a commercial AM, FM or TV station. He will also receive instruction in announcing, microphone techniques, program production, English and drafting. If the student did not obtain his First Class Radiotelephone Operator's license before coming to Kansas City, he will be tutored by his instructor after regular class hours.

RE

Curriculum For Radio and Electronics Course

This course is offered for those who desire to pursue a short, vocational type course in the electronics field. It provides the student with sufficient knowledge to obtain a Second Class FCC Radiotelephone license and the ability to install, maintain and/or operate two-way AM and FM communications equipment. The course contains 57 lessons and 10 kits of laboratory equipment to construct 49 experiments. It may be completed entirely by correspondence *(no resident training)* and is fully approved for Korean Veterans under Public Law 550.

The subject material during the first half of this course provides a thorough understanding of basic electrical laws, electronic circuit components, the operation of vacuum tubes, power supplies, oscillators, amplifiers, detectors, the design of radio receivers, the theory and use of transistors, power amplifiers, loudspeakers, and fundamental radio service instruments. Correlated with this study of theory, the home-laboratory course provides equipment and instructions to conduct a series of 26 experiments in Basic Electricity, con-

structing a multi-range testing meter, and making test measurements on a full-wave vacuum tube power supply.

In the second portion of the course, the principal study concerns advanced electronic circuits, frequency-modulated *(FM)* transmitters and receivers, amplitude-modulated *(AM)* transmitter modulation systems, high-voltage oscillators, amplifiers and power supplies, the audio control equipment and circuits necessary to broadcast by radio, and the radiation and reception principles involved in two-way communications. Upon completion of all lessons, the student is provided the study material necessary to prepare for a Second Class FCC Radiotelephone license.

The second part of the laboratory course consists of additional kits of parts with which to experiment with vacuum tube characteristics, radio frequency amplifiers, detectors, audio frequency amplifiers, loudspeakers, and a complete superheterodyne broadcast receiver. Transistors are added to the receiver and the student learns how they replace vacuum tubes in modern electronic circuits.

LESSON TITLES:

Unit One:

1. Your Future in Electronics
2. The Electron Theory
3. Fundamental Definitions
4. Ohm's Law and Its Applications
5. Electronic Circuits
6. Electrical Voltages and Currents
7. Vacuum Tube Theory
8. Magnets and Electromagnetism
9. Principles of Electronic Communications
10. Transformers and Inductors
11. Electrostatics and Capacitors
12. Electronic Circuit Components
13. Vacuum Tube Characteristics
14. Alternating Current Circuits
15. Resonant and Filter Circuits
16. Construction of Batteries
17. Power Supply Rectifier Circuits
18. Design of Meters for Radio Use
19. Vacuum Tube Detectors
20. Audio Frequency Amplifier Circuits
21. Grid Bias by Resistance
22. Tuning Circuits
23. Regeneration and Vacuum Tube Oscillators
24. Radio Frequency Amplifier Circuits
25. Screen Grid and Pentode Tubes
26. Methods of Volume and Tone Control
27. Superheterodyne Receivers
28. Audio Power Amplifiers
29. Loudspeakers
30. Multi-Element Tubes—Transistor Theory

Unit Two:

31. Fundamental Service Instruments
32. Signal Generators, Vacuum-Tube Voltmeters, Oscilloscopes

Unit Three:

33. Vacuum Tube Oscillators
34. Crystal Controlled Oscillators
35. Buffer Amplifiers-Neutralization
36. Matching Impedances
37. Fundamental Modulation
38. Class A and B Amplifiers
39. Class C Amplifiers
40. DC Motors and Generators
41. AC Motors and Generators
42. Power Tubes, Plate and Filament Supplies
43. Class B RF Linear Amplifiers
44. Parasitic Oscillations
45. Grid Modulation
46. Maintenance of Batteries
47. Applied Algebraic Principles

Unit Four:

48. Transmitter Circuit Components
49. Decibels and Microphones
50. Pads and Line Equalizers
51. Speech Input Equipment
52. Antennas and Transmission Lines
53. Low Powered Transmitters
54. Frequency Modulation Definitions
55. FM Receiver Principles
56. FM Detectors
57. FM Communications Equipment

HOME LABORATORY EXPERIMENTS:

BE Group

1. Practice Soldering and Use of Tools
2. Assemble Instrument Test Leads
3. Resistive Circuits—Series
4. Resistive Circuits—Parallel
5. Resistive Circuits—Series Parallel
6. Investigate and Plot Magnetic Field Patterns
7. Construct a Simple Magnetic Circuit
8. Experiment with Electromagnetism
9. Inductive Circuits and Alternating Currents
10. Operation of Transformers
11. Capacitive Circuits and Alternating Currents
12. Series and Parallel Resonant Circuits

ME Group

13. Construct a DC Voltmeter
14. Construct an AC Voltmeter
15. Construct a Milliammeter
16. Construct an Ohmmeter

MA Group

17. Practice Application of the Voltmeter
18. Kirchhoff's Laws
19. Alternating Current Circuits
20. Principle of the AC Generator
21. Measuring Capacitance

PS Group

22. Test and Assemble Power Supply Components
23. Construct a Complete Power Supply
24. Measure Voltage Regulation Characteristics
25. Testing for Hum or Ripple
26. Operation of Voltage Dividers

FE Group

27. Measure the Characteristics of Diode Vacuum Tubes
28. Plot Characteristic Curves for Triode Vacuum Tubes
29. Construct a Simple Triode Amplifier
30. Measure the Characteristics of Pentode Vacuum Tubes
31. Construct a Simple Pentode Amplifier Circuit
32. Cathode Bias Circuits
33. Grid Leak Bias Circuits
34. Construct a Radio Frequency Oscillator
35. Measuring the Frequency of Oscillation
36. Construct an Audio Frequency Oscillator

RE Group

37. Construct an Audio Power Amplifier with Loudspeaker
38. Construct an Audio Voltage Amplifier
39. Construct a Diode Detector
40. Construct a Grid Bias Detector
41. Construct a Grid Leak Detector
42. Construct a Regenerative Detector
43. Construct a Complete Superheterodyne Broadcast Receiver
44. Aligning the Receiver
45. Troubleshooting the Receiver

TR Group

46. Measure the Characteristics of Transistors
47. Construct a Transistor Audio Amplifier
48. Construct a Transistor I-F Amplifier
49. Construct a Transistor Mixer-Oscillator

Hartford Airline Personnel School, Central's East Coast Branch School.

Curriculum For Airline Career Training

ACT

This is a combination home study-resident training program for men and women ACCREDITED by the National Home Study Council.

Each student receives a total of 46 lessons, specially prepared for home study, and 4 typing manuals if needed. Depending on the course objective and age of the student, he *(or she)* may omit the home study typing course if it is not desired. Men and women enrolled for this course will receive the same study material to the end of the 34th lesson. The last 12 lessons for women consist of a series titled "Beauty and Personal Charm," written especially for the Institute by Dorothy Cocks, noted authority on personal grooming. For men, the final 12 lessons are devoted to Airline Ground Operations.

Upon satisfactory completion of all home study assignments, the student will apply for four weeks terminal resident training in Kansas City, Hartford, or Los Angeles. There is no additional tuition charge for the resident training.

LESSON TITLES:

1. The Beginnings
2. Coast to Coast
3. Today's Aircraft
4. Why Flying Is Safe
5. Airline Organization
6. Reservations and Ticketing
7. Airline Communications
8. Flight Crews
9. The Station Agent
10. Your Future in Aviation
11. Transcontinental Airlines
12. Regional Trunk Airlines
13. Local Service Carriers
14. International Airlines
15. How to Use Airline Guide
16. Reservations Procedures
17. Airline Reservations Sales Offices
18. Telephone Tips
19. Reservations Control
20. Air Coach—Family Plan—Special Service
21. Air Freight
22. Airline Traffic and Sales
23. Airline Ticket Offices
24. Passenger Service
25. The Official Airline Tariff
26. Ticketing Procedures
27. Teletype Communications
28. Manual Teletype Operation
29. Automatic Teletype Systems
30. Airports and Airways
31. Airline Meteorology
32. Airline Orientation Procedures
33. Formulas for Airline Advancement
34. Horizons Unlimited

ADDITIONAL LESSONS FOR WOMEN STUDENTS:

1. Good Looks Start with Good Health
2. The Voice of Beauty
3. Discover Your Pretty Face
4. How to Solve Skin Problems
5. Lasses with Stylish Locks
6. Make Your Clothes Work for You
7. Posture that Puts You Over
8. Stories Told by Tell-Tale Hands
9. Secrets of Successful Make-Up
10. Building Your Personality
11. Success Is What You Make It
12. Your Etiquette Is Showing

ADDITIONAL LESSONS FOR MEN STUDENTS:

1. Fundamentals of Radio Operating
2. ARINC Communications Manual
3. Airways Traffic Control
4. Ramp Procedures
5. Flight Control Procedures
6. Weight and Balance Procedures
7. Load Computation and Cargo Messages
8. Air Mail
9. Air Express
10. Air Freight
11. Weather Teletype
12. The Air Male

ESAO

Curriculum For Airline Station Agent Training

This course is approved for Korean Veterans under Public Law 550, and is completed entirely by correspondence. There is no resident school training; however, the employment service of the Institute at Hartford, Kansas City, and Los Angeles is available for all graduates. Each student will receive 38 lessons, 5 typing manuals and 1 Official Airline Guide. The course is arranged in five study sections, listed below with lesson titles. Graduates are qualified for employment as an agent at intermediate or terminal airline stations, and may expect such positions as an Operations Agent, Ticket Agent, Passenger Service Agent, Air Freight Agent, Ramp Agent, or general Station Agent duties.

LESSON TITLES:

Section 1. Fundamentals of Air Transportation *(10 lessons)*

This section includes a study of the history and development of the commercial airlines, various airline departments, types of aircraft in use, and the duties of various airline personnel.

1. The Beginnings
2. Coast to Coast
3. Today's Aircraft
4. Why Flying Is Safe
5. Airline Organization
6. Reservations and Ticketing
7. Airline Communications
8. Flight Crews
9. The Station Agent
10. Your Future in Aviation

Section 2. Reservations and Passenger Service *(12 lessons)*

In this section are included a study of the route structures of the commercial airlines, key city designators, reservations office facilities, and reservations and ticketing procedures.

1. Airline Reservations
2. Routes and Designators
3. How to Use the Airline Guide (A Guide is issued with this lesson)
4. Air Coach—Family Plan—Special Service
5. Reservations Control
6. Reservations Procedures
7. Telephone Tips
8. International Airlines
9. The Official Airline Tariff
10. Ticketing Procedures
11. Airline Ticket Offices
12. Passenger Service

Section 3. Communications Services *(6 lessons)*

Airline communications departments, manual and automatic teletype equipment, tape reading, teletype circuits, and airline circuit arrangements are studied in this section.

1. Teletype Communications
2. Manual Teletype Operations
3. Automatic Teletype Equipment
4. Perforated Tape
5. Airline Teletype Communications Circuits
6. Airline Circuit Arrangements

Section 4. Ground Operations *(10 lessons)*

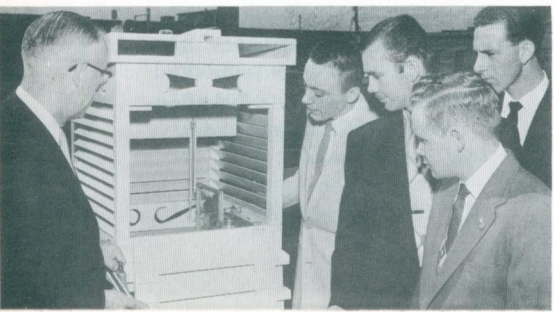
This section covers a study of airline ground radio operating procedures, Federal airways traffic control regulations, air mail, air express, air freight, weight and balance, load computation, and ramp procedures.

1. Fundamentals of Radio Operating
2. ARINC Communications Manual
3. Airways Traffic Control
4. Ramp Procedures
5. Flight Control Procedures
6. Weight & Balance Procedures
7. Load Computation and Cargo Messages
8. Air Mail
9. Air Express
10. Air Freight

Section 5. Typing *(5 manuals)*

These manuals are to be completed concurrently with the study of the other four sections of this course using applicable airline terminology and abbreviations for practice work. The student must arrange for his own typewriter.

Upon satisfactory completion of this course, a Certificate of Graduation will be issued which will read "Airline Station Agent Training—Extension."



The weather is important to the airlines. Here a group of students receive instruction in airline meteorology.

TO: Registrar
Central Technical Institute
1644 Wyandotte St.,
Kansas City 8, Mo.

Date _____

Dear Sir:

Please send me further information about your course in:

_____

QUESTIONNAIRE

The information below will be held confidential. Answer all questions.
Please print or write plainly.

Your Full Name _____

Home Address _____
Street City Zone State

Married? _____ Number of Dependents _____ Occupation _____

U. S. Citizen? _____ If not, what country? _____ Race _____

Are you a High School graduate? _____ Circle highest grade completed:

Grammar School 1 2 3 4 5 6 7 8; High School 1 2 3 4; College 1 2 3 4

Other Education _____

Did you complete first year H. S. Algebra? _____ List any other science or allied subjects you have studied such as chemistry, physics, etc.

_____

Explain any physical defects _____

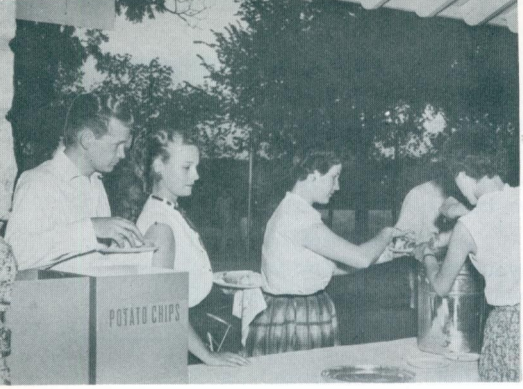
Are you a Korean Veteran? _____ If you intend to apply for veteran benefits, please give your date of entry into service, your date of discharge and state if you have had any previous training under Public Law 550.

_____

Employer's Name _____

Employer's Address _____

From what source did you learn
of Central Technical Institute? _____

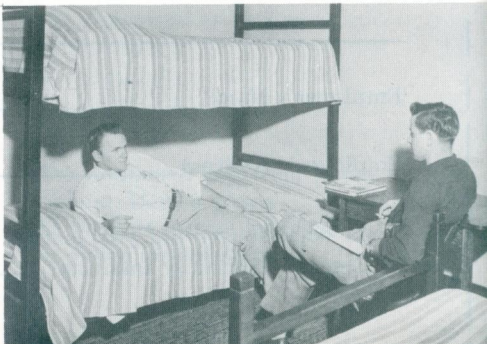


Dances and picnics are frequently planned by the student council.

STUDENT ACTIVITIES

Participation in sports is enjoyed by many Central students.

Living quarters are clean, comfortable, and reasonable.



TO: Registrar
Central Technical Institute
1644 Wyandotte St.,
Kansas City 8, Mo.

Date _____

Dear Sir:

Please send me further information about your course in:

_____

QUESTIONNAIRE

The information below will be held confidential. Answer all questions.
Please print or write plainly.

Your Full Name _____

Home Address _____
Street City Zone State

Married? _____ Number of Dependents _____ Occupation _____

U. S. Citizen? _____ If not, what country? _____ Race _____

Are you a High School graduate? _____ Circle highest grade completed:

Grammar School 1 2 3 4 5 6 7 8; High School 1 2 3 4; College 1 2 3 4

Other Education _____

Did you complete first year H. S. Algebra? _____ List any other science or allied subjects you have studied such as chemistry, physics, etc.

_____

Explain any physical defects _____

Are you a Korean Veteran? _____ If you intend to apply for veteran benefits, please give your date of entry into service, your date of discharge and state if you have had any previous training under Public Law 550.

_____

Employer's Name _____

Employer's Address _____

From what source did you learn
of Central Technical Institute? _____

REGIONAL REGISTRATION OFFICES

KANSAS CITY, MISSOURI
1644 Wyandotte Street
Phone: HArrison 1-5852

HOLLYWOOD, CALIFORNIA
6472 Santa Monica
Phone: HOllywood 3-2107

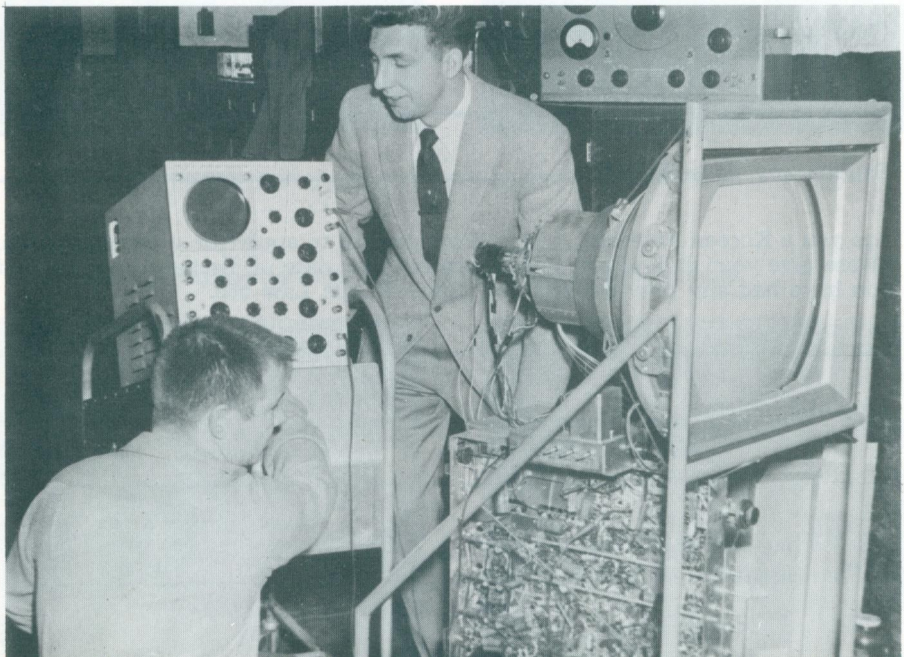
HARTFORD, CONNECTICUT
197 Asylum Ave.
Phone: JAckson 7-7251

CLEVELAND, OHIO
816 National City Bank Bldg.
Phone: MAin 1-8725

DETROIT, MICHIGAN
415 Lafayette Building
144 West LaFayette Blvd.
Phone: WOodward 2-7762

WINDSOR, ONTARIO
Canada Building
Ouelette Avenue

A wealth of special electronic equipment is available to Central resident students. Here a Central instructor demonstrates the use of a cathode-ray oscilloscope to test a color television receiver.



1958 SCHOOL CALENDAR

Resident School Class Starting Dates

Central Technical Institute, Kansas City, Missouri

Technical Division	Airline Division	
January 6	January 6	July 7
March 3	February 17	August 18
April 28	March 31	September 29
July 7	May 12	November 10
September 2		
October 27		

California Air College, Los Angeles (Hollywood), California

Technical Division	Airline Division
January 6	January 6
March 31	March 31
July 7	July 7
September 29	September 29

Hartford Airline Personnel School, Hartford, Connecticut

January 6	July 7
February 17	August 18
March 31	September 29
May 12	November 10

NOTE: Resident class facilities are limited. Applicants should matriculate as far in advance as possible to be assured of a class reservation.

OFFICIAL HOLIDAYS 1958

May 30	Memorial Day
June 20, 3:00 P.M. to July 7, 8:00 A.M.	Mid-Year Recess**
July 4	Independence Day*
September 1	Labor Day
November 11	Veterans' Day*
November 27	Thanksgiving Day
November 27 and 28	Thanksgiving Recess**
December 19, 3:00 P.M. to January 5, 1959, 8:00 A.M.	Christmas Recess

*Kansas City only

**Hartford and Los Angeles only