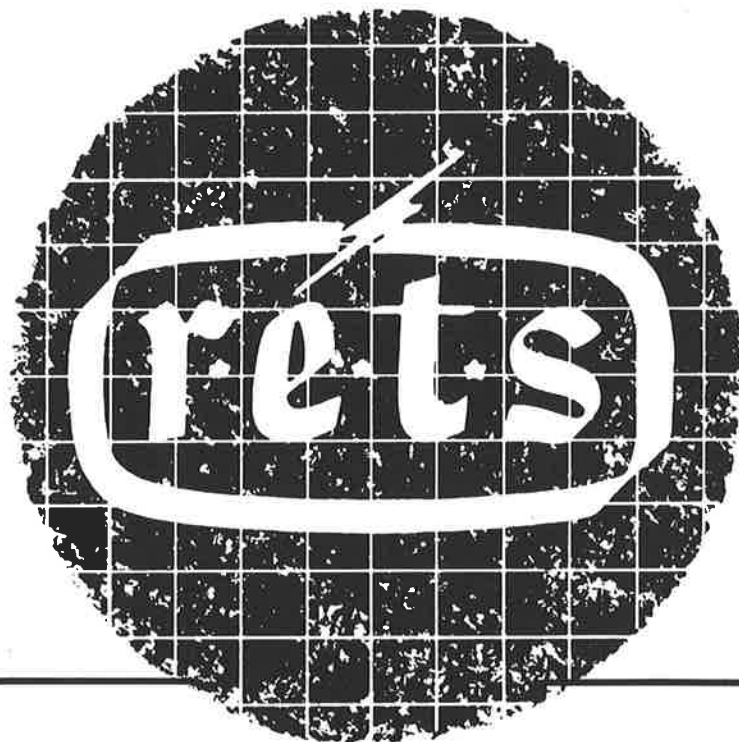


Training Specialists for Industry Since 1935



**GENERAL
INFORMATION**
and
COURSE OUTLINES

R. E. T. S. ELECTRONIC SCHOOLS

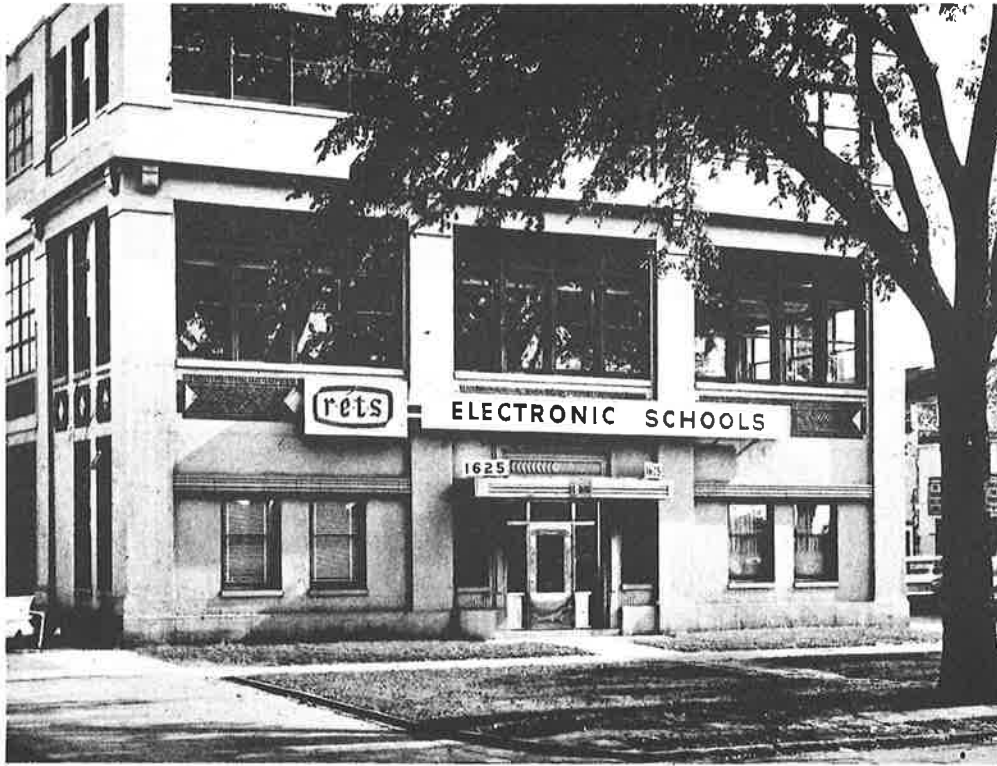
INTERNATIONAL OFFICES

1625 E. Grand Blvd

(313) 925-5600

• Detroit, Michigan 48211

REVISED JANUARY 1979



R.E.T.S. ELECTRONIC SCHOOLS

DETROIT DIVISION ORGANIZATIONAL CHART

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Chairman

D.L. WITHERS
General Manager

ANDREW VIGNONE
Office Manager

PETER BERCK
Director of Admissions

GLEN R. WISNIEWSKI
Education Director

Placement Office
RONALD HILDRETH, Director
THOMAS VAN ETTEN, Assistant Director

MICHAEL GOLDEN
Laboratory Coordinator
KEITH F. GREEN
A.M. Instructor Supervisor

Registrar
ANDREW G. VIGNONE

ROBERT ENGLE
P.M. Instructor Supervisor

STAFF

An instructional staff ranging from 25 to 35 members is supervised by an Educational Committee comprised of two officers and three instructors.

To Educate For Leadership In The Field Of Electronics

Dear Prospective Student:

R.E.T.S. Electronic Schools was established in 1935 as an expression of faith in the then embryonic electronics industry. From the very beginning, our policies have been directed toward the education of Applied Electronic Technicians and Electronics Servicing Technicians both in the theoretical and practical phases of electronics. It was our belief that this young industry had an urgent need for professional personnel who could design and construct prototypes, as well as install, maintain, and sell the equipment.

R.E.T.S. has been built upon these policies. The contributions and accomplishments of our graduates to the electronics industry over the past 40 years have more than proven our convictions.

In the late 1930's and early 1940's R.E.T.S. personnel conducted valuable research programs in television and taught classes in this new means of communication. When commercial television burst upon the scene in the early post-war years, the school was in an excellent position to assume the responsibility for training young men as technicians to fill the many positions which resulted from television's explosive growth.

During these early years, many of our graduates were employed by the large television networks, as well as independent TV and radio stations. In recent years, however, R.E.T.S. graduates have been called upon to assume important technical positions in such rapidly expanding fields as aircraft, missiles, computers, automation, space exploration and industrial electronics.

Mankind has barely begun to unlock the wonders of the age of electronics. As we probe the secrets of the earth and outer space, the need for skilled technicians will become greater. R.E.T.S. is proud of its role in our progress this far and accepts the challenge of training future leaders in the field of electronics.

Sincerely,

R.E.T.S. Electronic School

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GENERAL INFORMATION

FULL TIME RESIDENT TRAINING PROGRAMS

R.E.T.S. ELECTRONIC SCHOOLS is located at 1625 East Grand Boulevard, Detroit, Michigan, immediately east of the intersection of Mt. Elliott Avenue. The Edsel Ford Expressway (I-94) provides direct access to the School from the Mt. Elliott ramps.

R.E.T.S. ELECTRONIC SCHOOLS is accredited by the Accrediting Commission of the National Association of Trade and Technical Schools. The accrediting Commission of the National Association of Trade and Technical Schools is listed by the U.S. Office of Education as a nationally recognized accrediting agency under the provisions of Chapter 33, Title 38, U.S. Code, and subsequent legislation. R.E.T.S. is also licensed by the Michigan Department of Education.

R.E.T.S. ELECTRONIC SCHOOLS was established in 1935 and has trained thousands of electronic specialists for employment in responsible positions throughout the world.

R.E.T.S. has established training laboratories in the United States and Canada to assist the electronics industry in acquiring the needed personnel that the rapid growth of the industry yearly demands.

The R.E.T.S. training facility at the above address in Detroit is the parent School and International Headquarters of the R.E.T.S. Electronic Training Systems.

The School occupies approximately 28,000 square feet of floor space in a building completely renovated in 1962 to provide air-conditioned lecture and laboratory rooms. Ample free parking facilities are available in the immediate vicinity of the School.

ENTRANCE REQUIREMENTS. The School admits as regular students only those possessing a high school diploma or its generally recognized equivalent (GED). Those who have not completed their high school education may be admitted on a conditional basis upon a review of their records by the Credentials Committee, and by agreeing to complete and pass the General Education Development Test prior to entering the third quarter of training.

LENGTH OF COURSES. The Electronics Engineering Technology Course consists of nine quarters of 12 weeks each. The Specialized Electronics Servicing course consists of six quarters of 12 weeks each. Attendance for both courses is 4.8 contact hours per day, 5 days per week.

CONTACT HOUR. A contact hour is designated as a training hour of 50 minutes. The remaining 10 minutes out of each clock hour is reserved for changing classrooms or an optional break. A 30 minute lunch period will be given sometime during the 4.8 contact hour day.

CREDIT HOUR. One credit hour represents one contact class hour per week for a period of twelve weeks plus outside assignments or 1.8 lab hours per week for a period of twelve week.

TRANSFER OF CREDIT. Students successfully completing the Electronic Engineering Technology course may, according to an Agreement of Articulation between Siena Heights College and R.E.T.S. Electronic Schools signed in March, 1974, transfer to Siena Heights with approximately senior status, leaving approximately 30 credit hours to complete before being awarded a Bachelor of Applied Science degree.

TUITION. Tuition rates are listed in the course outlines for the Electronics Engineering Technology Course and the Specialized Electronics Servicing Course.

CLASS SIZE. The average class size in our full time resident training programs at the time of the printing of this Bulletin was 29 students.

REFUND POLICY. A full refund of all funds paid will be made if the applicant is rejected by the School.

A full refund of any funds paid will be made, if this refund is requested by mail and postmarked within five days after the enrollment agreement was signed and monies paid.

An applicant who has not requested cancellation within 5 days and who has been accepted by the School is then classified as an enrollee.

All funds paid by the enrollee prior to the beginning of instruction shall be refunded if the enrollee involved presents medical evidence of inability to participate in the program contracted for.

An enrollee, prior to the beginning of instruction, may cancel his or her enrollment by registered mail at any time for any reason within 10 days after enrollment even though less than 30 days may remain before the beginning of instruction.

In case of cancellation of enrollment as stated above, the enrollee's obligation to the School will in no case exceed \$50.00 and monies paid to the School in excess of \$50.00 will be refunded within 30 days.

An enrollee not requesting cancellation as stated above is then classified as a student and, prior to the beginning of instruction, is only eligible for a refund of any amount paid toward the registration fee, and tuition in excess of \$100.00.

A student who starts training, but terminates within the first week after starting the first quarter, will only be charged an amount equal to \$100.00 plus 10% of the tuition for one calendar year (52 weeks) of the course. The tuition charge under this condition shall not exceed \$300.00.

If a student terminates training one week but within the first quarter he or she will only be charged an amount equal to \$100.00 plus 25% of the tuition for one calendar year (52 weeks) of the course.

For a student terminating training after completing over one quarter but within two quarters, the tuition charges made by the School shall not exceed 50% of the tuition for one calendar year of the course plus \$100.00.

All of the stated course price attributable to the period beyond the first year will be refunded when the student terminates during the first year.

A student starting any full time course, with the exceptions stated above, is responsible for the payment in full for any quarter entered.

A student may withdraw at any time by notifying an official of the School. All financial obligations to R.E.T.S. must be paid in full before a satisfactory withdrawal will be granted. No transcript of official records will be furnished to, or for, any student with an unpaid financial obligation.

GENERAL INFORMATION (Continued)

FULL TIME RESIDENT TRAINING PROGRAMS

PROGRESS RECORDS. Student Periodic Progress Reports regarding grades, attendance, and an evaluation of the student's conduct will be furnished at the completion of each quarter to the student or to the person the student designates.

RELEASE OF INFORMATION. The School reserves the right to release information regarding the dates of your enrollment at this School, your address and phone number, and your last quarter completed to other schools and to employers. Your written permission is required by law before the School may release any other information.

GRADING. A letter-mark system of grading is used for recording student progress. A-Excellent, B-Good, C-Fair, D-Passing, E-Failure, INC-Incomplete.

A student who fails any subject in any quarter will not be permitted to enter the next quarter of training. Under these conditions the student will be required to repeat the quarter of training failed. Any student who receives a grade of INC (incomplete) for any subject in any quarter of training may be allowed to continue training on probation, provided arrangements are made to remove the incomplete grade within a reasonable period of time.

STUDENT COUNSELING. Educational objectives, grades, and attendance are reviewed prior to entering a new quarter of training by a member of the faculty other than the student's instructor. If a student desires counseling between quarters, the chief instructor should be contacted for an appointment.

REPEAT TIME. A student who elects or is required to repeat a quarter of training will be required to continue paying quarterly tuition. Should the student only repeat a portion of any quarter, the quarterly tuition will be pro-rated. All tuition paid toward repeat time will be applied to the total cost of the training program. The student will not be charged for more than the total number of quarters in the course regardless of the total amount of time it takes him to complete the course. Should a student terminate during his training program, tuition paid toward repeat time is non-refundable.

OUTSIDE STUDY ASSIGNMENTS. All students are responsible for reading and studying materials issued by their instructors. Many times it is necessary for students to spend extra hours out of School studying assigned text material. Our instructors are aware that many students hold full time jobs while attending School. Whenever possible outside assignments will be made prior to a weekend.

ATTENDANCE. R.E.T.S. believes that regular and punctual attendance is important to a high standard of work. In order to further this belief, the Office of the Director of Education has established the rule that all students must be in attendance a minimum of 90% of the scheduled class time. Any student whose absence falls below this minimum standard is liable for (1) an interruption for unsatisfactory attendance, (2) termination, or (3) recycling. All students are required to make a report to their instructor after each absence.

A student will be classified as terminated after one week's absence. Re entrance will require an interview by School official. When it is deemed necessary for the student to drop back to a class following the one being attended the student will be required to sign a new enrollment agreement reflecting the tuition rates being paid by that class.

In no case shall any student be charged tuition for more than the number of quarters attended. Nor shall any student be charged for more than the contract price of the course.

In case of student prolonged illness or accident, death in the family, or other circumstances that make it impractical to complete the course, the School shall make a settlement, which is reasonable and fair to both.

Official withdrawal date for refund purposes is defined as the last date of physical attendance.

FINANCIAL AID. R.E.T.S. Electronic Schools is approved by the United States Office of Education to participate in federal financial aid programs. R.E.T.S. currently participates in the Basic Educational Opportunity Grant, National Direct Student Loan, and Supplemental Educational Opportunity Grant programs. Further information regarding any of these programs may be obtained by contacting the Financial Aid Office of R.E.T.S. Electronic Schools. R.E.T.S. students are also eligible to participate in the Michigan Guaranteed Student Loan Program.

CREDIT FOR PREVIOUS TRAINING. Students having previous training or experience will be thoroughly tested upon entrance and will be advanced to the highest level for which they can qualify. Tuition for any such part or period of the program of training will be adjusted by pro-rating the tuition for the credit allowed.

SCHOOL CALENDAR. The School operates on a continuous schedule. The full time classes are scheduled to start three times each year; fall, summer, and winter.

HOLIDAYS AND VACATIONS. The following legal holidays are observed: Memorial Day — Independence Day — Labor Day — Thanksgiving Day and the day following — Christmas Eve and Christmas Day — New Year's Day — Good Friday.

When the 4th of July falls on a Tuesday, the preceding Monday shall also be a holiday. When the 4th of July falls on a Thursday, the following Friday shall also be a holiday. When Christmas Day and New Year's Day fall on a Thursday, the following Friday shall also be a holiday.

When Christmas Day and New Year's Day fall on a Sunday, or if the 4th of July falls on Saturday or Sunday, the following Monday shall also be a holiday.

Electronic Engineering Technology students are excused from classes on the last School day of Quarters I, II, IV, V, VII, and VIII. After the completion of Quarters III and VI a week's vacation is scheduled.

Specialized Electronics Servicing students are excused from classes on the last School day of Quarters I, II, IV, and V. After the completion of Quarter III a week's vacation is scheduled.

FULL TIME RESIDENT TRAINING PROGRAMS

MAKE UP TIME. Regardless of grades or standing in class, a student must make up all missed time that is in excess of 10% of the scheduled class time. A student who misses more than 20% of the scheduled class time will not be permitted to enter the next quarter of training.

TARDINESS OR LEAVE EARLY. As we expect you to be here each day, so we expect you to be here on time. Tardiness or leave earlys are recorded in quarter-hour increments and are included in counting total absences. You make the record. We record it. Employers refer to it.

MAKE-UP WORK. The student is required to make up work missed as a result of absence. The instructor will assign the work that is to be completed for each absence.

PROBATION. Excessive absence and/or poor grades may cause a student to be admitted to a quarter on a probational basis or allowed to remain in a quarter on a probational basis. A student who does not fulfill the terms of this probation may be terminated or recycled at the discretion of the School.

LEAVE OF ABSENCE. A student may be granted a temporary leave of absence if a termination notice, form 26-7-75, has been signed which specifies the date of intended return. A student who does not return on or before the date specified will forfeit all attained scholastic progress and all monies paid. A leave of absence will only be granted for a maximum of two years. If the tuition rates are increased during the leave of absence, the student will be subject to the new rates upon re-entry. Additionally, a re-entering student who elects to review material that has previously been taken will be required to pay tuition during the review period, however, any tuition paid during the review period will be credited to the final phase of the training program. Tuition paid during the review period will not be refunded if the student elects to discontinue training.

WEATHER EMERGENCIES. The School reserves the right to close the School during a weather emergency or other "acts of God." Under these conditions, the student will not be charged with an official absence. The material that would have been covered during the closed day(s) will be made up during the quarter which ensures completion of the entire quarter's scheduled material. This make up may involve outside study assignments. Tuition adjustments will not be made when the School is closed for a weather emergency or other "acts of God."

GRADUATION REQUIREMENTS. To graduate, a student must complete each subject in every quarter with a D or better grade and maintain a 90% attendance record. Students satisfactorily completing their course will receive a diploma upon graduation.

PLACEMENT SERVICE. R.E.T.S. maintains a placement service that is available to all its students and graduates. This service is available not only during your attendance and at the time of graduation, but at any time to an alumnus. A full-time placement officer will assist students in locating potential employers, scheduling appointments, etc. Every effort will be made to aid those students seeking employment both during and after completion of their course of study. This is not a guarantee of employment or a minimum starting salary. No one is authorized by the School to make such guarantees.

REVISIONS: The School reserves the right to make changes in curriculum, reset class schedules and hours, and consolidate classes.

HOUSING. Assistance will be given to any out of town student in locating adequate rooming facilities or an apartment.

CONDUCT AND DISCIPLINE. Students are expected to behave with decorum, to obey the regulations of the School. Unethical or undesirable conduct, which is inconsistent with general good order, wherever it may occur, is held to be sufficient grounds for dismissal.

The attempt of any student to present as his own any work which he has not honestly performed or to pass any examination by improper means is regarded as a most serious offense and renders the offender liable to immediate expulsion. The aiding and abetting of a student in any dishonesty is likewise held to be a grave breach of discipline.

A student failing to achieve the required standards of attendance, conduct or discipline may be dismissed from the School.

Upon the written request of the student, a review board consisting of the student's instructor, a School official, and a School officer will conduct a hearing before the student is dismissed.

ATTIRE. As we are training you for a career in electronics, we expect you to come to School dressed as you would for your future career. Students are often sent directly from the School to an employment interview — the way you look is important.

Prospective employers frequently visit the School to interview graduating seniors. It is important for all of us to create a good impression; therefore, the School requires that the student refrain from wearing tank tops, shorts, hats of any other unconventional attire during class.

VOCATIONAL REHABILITATION PROGRAM. The cooperative effort of R.E.T.S. and the Department of Vocational Rehabilitation in many states has resulted in the training and rehabilitation of a great number of persons afflicted with physical disabilities and their subsequent entry into the field of Electronics. There they are able to earn their livelihood and become an integral part of this nationally important industry. There are many jobs in electronics that can be performed by the physically handicapped.

FOREIGN STUDENTS. This School is authorized by Federal law to enroll non-immigrant alien students.

VETERANS. R.E.T.S. Electronic Schools is approved for training eligible veterans under Public Law 93-508, Chapters 34 and 35, Title 38, United States Code. Veterans, or children of veterans who are deceased, make application to the Veterans Administration prior to entering School.

PERSONAL PROPERTY. R.E.T.S. assumes no responsibility whatsoever for loss or damage to a student's personal property, or for any damage to any car; nor loss by theft of any vehicle or any of its contents, in, on, or adjacent to School property.

PARKING. A marked-off area on the east side of the building is reserved for the use of faculty and visitors. An additional area across the street is reserved for students. R.E.T.S. assumes no responsibility whatsoever for any damage to any car, nor loss by theft of any vehicle or any of its contents.

RESIDENT COURSES (Full Time)

ELECTRONIC ENGINEERING TECHNOLOGY

PURPOSES AND OBJECTIVES

R.E.T.S. Electronic Schools is a private, proprietary school which is licensed by the Michigan Department of Education. Our paramount objective is to provide a curriculum of study in electronics engineering that is not only of the highest quality, but is also a technical and industry model. The management and instructional staff are guided by this objective; consequently, this institution is constantly updating its current program and developing new curriculum areas which prepares us to meet the educational demands of the expanding and everchanging electronics industry.

Any individual, regardless of race, color, sex, or creed, who fulfills the entrance requirements, may enroll in the Electronics Engineering Technology course. The average individual with a sincere and fervent desire to learn can successfully complete this program and procure meaningful, economically rewarding employment within the electronics industry. Consumer electronics, instrumentation, computers and peripherals, communications electronics, research and development, applications engineering, aviation and space electronics, automotive electronics, medical electronics, industrial electronics and design are just a few of the occupational areas that are available to graduates of this program.

Employment and advancement after employment often require more than technical skills. As a result, the philosophy, policies, rules and regulations of R.E.T.S. Electronic Schools were developed to also aid in the generation of good personal habits and attitudes, communication skills, and logic and reasoning capabilities. R.E.T.S. always attempts to render the personal services that are needed to help or enhance the students' abilities to achieve their maximum potentials.

OUTLINE OF TRAINING PROGRAM AND TUITION COST				
Quarter	Weeks	Credit Hours	Contact Hours	Cost
I	12	20	288	\$ 703.00
II	12	20	288	528.00
III	12	20	288	528.00
IV	12	20	288	528.00
V	12	20	288	528.00
VI	12	20	288	528.00
VII	12	20	288	528.00
VIII	12	20	288	528.00
IX	12	20	288	528.00
TOTALS				
9	108	180	2592	\$4927.00*

*This includes all manuals, material, lab, and lecture fees. Budget plans are available.

RESIDENT COURSES (Full Time)

ELECTRONIC ENGINEERING TECHNOLOGY

COURSE OUTLINE

SUBJECT	CREDIT HOURS	CONTACT HOURS
QUARTER I		
ELECTRONICS 101	10	120
LABORATORY 101	5	108
MATHEMATICS 101	<u>5</u>	<u>60</u>
TOTAL	20	288
QUARTER II		
ELECTRONICS 102	10	120
LABORATORY 102	5	108
MATHEMATICS 102	<u>5</u>	<u>60</u>
TOTAL	20	288
QUARTER III		
ELECTRONICS 103	10	120
LABORATORY 103	4	86.4
MATHEMATICS 103	5	60
ENGINEERING DRAWING 101	<u>1</u>	<u>21.6</u>
TOTAL	20	288
QUARTER IV		
ELECTRONICS 201	10	120
LABORATORY 201	5	108
MATHEMATICS 201	<u>5</u>	<u>60</u>
TOTAL	20	288
QUARTER V		
ELECTRONICS 202	10	120
LABORATORY 202	4	86.4
MATHEMATICS 202	5	60
ENGINEERING DRAWING 202	<u>1</u>	<u>21.6</u>
TOTAL	20	288

RESIDENT COURSES (Full Time)

ELECTRONIC ENGINEERING TECHNOLOGY

COURSE OUTLINE -- CONTINUED

SUBJECT	CREDIT HOURS	CONTACT HOURS
QUARTER VI		
ELECTRONICS 203	8	96
LABORATORY 203	4	86.4
MATHEMATICS 203	5	60
ENGINEERING DRAWING 203	1	21.6
TECHNICAL WRITING 201	2	24
TOTAL	20	288
QUARTER VII		
ELECTRONICS 301	8	96
LABORATORY 301	5	108
TECHNICAL WRITING 301	3	36
PHYSICS 301	4	48
TOTAL	20	288
QUARTER VIII		
ELECTRONICS 302	8	96
LABORATORY 302	5	108
MATHEMATICS 301	4	48
COMMUNICATIONS 301	3	36
TOTAL	20	288
QUARTER IX		
ELECTRONICS 303	8	96
LABORATORY 303	5	108
MATHEMATICS 302	4	48
COMMUNICATIONS 302	3	36
TOTAL	20	288
TOTAL CREDIT HOURS AND CONTACT HOURS	180	2592

RESIDENT COURSES (Full Time)

ELECTRONIC ENGINEERING TECHNOLOGY

Course Descriptions

ELECTRONICS 101

A study of the fundamental principles of electrical conduction includes the effects of series and parallel resistors, capacitors and inductors on voltage, current and power. The principles of magnetism and electromagnetism will be explored through solenoids, alternators, generators and motors. The operating characteristics of rectifiers will be studied and applied to power supply circuits. Some of the electrical principles studied in this quarter will be illustrated with the automotive electrical system.

ELECTRONICS 102

A comprehensive study of solid state principles and circuits which includes the static and dynamic characteristics of low and high frequency amplifiers. The operation and function of basic electronic circuits, such as AF amplifiers, RF amplifiers, detectors, AGC, various sinewave oscillators, various relaxation oscillators, mixers, antenna input circuits, FET amplifiers, and regulated power supplies, will also be studied. In addition, basic troubleshooting techniques will be presented.

ELECTRONICS 103

This quarter is an introduction to the application of electronics in the industrial environment. The operating characteristics of vacuum tubes, gas-filled tubes, SCRs, UJTs, diacs, triacs and other switching devices are studied and applied to power control and timing circuits. Relays, relay logic, light-emitting and photosensitive devices, magnetic amplifiers, transducers, and all previously studied devices and circuits will be applied to motor controls, conversion devices, proximity controls, sequence timing, induction and dielectric heating, basic industrial instrumentation, temperature controls, synchros and servomechanisms.

ELECTRONICS 201

A study of basic transmitter principles and circuits which includes amplitude and frequency modulation theory, modulators, transmitter oscillators, tuned RF power amplifiers, AF amplifiers and limiters, frequency multipliers, transmission lines, basic antenna theory, and test equipment for transmitters. This quarter also provides preparation for the 3rd and 2nd class FCC licenses.

ELECTRONICS 202

Solid state, black and white TV is thoroughly examined by extensive analysis of television tuners, IF amplifiers, sound circuits, sync circuits, AGC circuits, video amplifiers, vertical and horizontal sweep circuits, vertical and horizontal output circuits, and low and high voltage supplies. This quarter also provides preparation for the 1st class FCC license and a study of CB, microwave, radar, and color transmitters and receivers.

ELECTRONICS 203

A presentation of the building blocks of digital electronics which includes basic gates, encoders, decoders, flip-flops, counters, shift registers, multiplexers, demultiplexers, digital readouts, basic arithmetic units, and digital integrated circuits. Applications of digital electronics are also examined. In addition, design techniques for discrete solid state components are studied with emphasis on power supplies and amplifiers.

ELECTRONICS 301

This quarter provides an extensive study of linear integrated circuits and their applications, such as active filters, comparators, differentiators, function generators, IC timers, inverting amplifiers, non-inverting amplifiers, oscillators, phase locked loop, regulated power supplies, and summing amplifiers. Manufacturers' data sheets and application notes are thoroughly discussed and interpreted. This quarter also examines the common digital and analog transducers that are used to sense pressure, heat, force, movement, and moisture. In addition, digital-to-analog and analog-to-digital conversion techniques are presented and applied to analog-digital devices, such as the DVM and a basic numerical control system.

RESIDENT COURSES (Full Time)

ELECTRONIC ENGINEERING TECHNOLOGY

Course Descriptions

ELECTRONIC 302

A study of digital computer principles which includes the operation, function and typical circuitry of the arithmetic unit, the control unit, the input/output units, and the memory. Machine language is thoroughly explored and applied. Basic programming is extensively taught along with an introduction to several business languages.

ELECTRONICS 303

The theory and operation of microprocessors and minicomputers are thoroughly examined. Basic and Assembly language programming with program debugging techniques are also studied. The computer is then applied to such systems as sequential and numerical controllers. This quarter also provides a comprehensive study of computer peripherals which includes the theory and operation of card punches, card readers, cassettes, data communications equipment, disk packs, floppy disks, line printers, magnetic recording devices, magnetic tape stations, modems, printing devices, selectrics, time sharing concepts, TTY terminals, typewriters and video terminals.

ELECTRONICS LABORATORY 101

Resistors, capacitors and inductors are utilized to construct DC and AC circuits and then pertinent voltage, current and power measurements are performed. There are also laboratory projects to demonstrate the principles of electromagnetism and automotive electrical systems. Halfwave, fullwave, bridge and doubler power supplies are constructed. Appropriate test equipment, such as the oscilloscope and the volt-ohm-milliammeter, are used to either troubleshoot or analyze circuit conditions.

ELECTRONICS LABORATORY 102

A solid state superhetrodyne receiver is constructed which affords the student an opportunity to test and examine many of the circuits that are discussed in lecture. Besides the circuits in the radio, various other amplifiers, oscillators, and power supplies are constructed and pertinent measurements are performed. Practical troubleshooting techniques that utilize the signal generator, oscilloscope and VOM are emphasized throughout this quarter.

ELECTRONICS LABORATORY 103

Industrial circuits and systems are constructed with solid state components on the same day that they are discussed in lecture. When applicable, gas-filled tubes are utilized. The student is also provided many supplementary laboratory projects to illustrate variations in industrial control circuits. Logical test procedures and troubleshooting techniques are emphasized throughout this quarter.

ELECTRONICS LABORATORY 201

Transmitter principles are illustrated through a stage-by-stage construction of a solid state transmitter. During the transmitter's construction and after its completion, the student becomes familiar with the following test and/or monitor equipment: Q meters, beat frequency meters, SWR meters, watt meters, grid-dip meters and wave absorption meters, lecher lines, modulation meters, deviation meters and frequency counters.

ELECTRONICS LABORATORY 202

During this quarter, the students are furnished a solid state TV. The laboratory projects are designed to produce an understanding of the function and operation of the circuits within the television. This is accomplished by static and dynamic analysis of the TV's circuits with appropriate test equipment, such as DVMs, triggered sweep oscilloscopes, dot bar generators, and sweep and marker generators. In addition, there are projects to demonstrate the fundamentals of radar, microwave and CB.

RESIDENT COURSES (Full Time)

ELECTRONIC ENGINEERING TECHNOLOGY

Course Descriptions

ELECTRONICS LABORATORY 203

In the first half of the quarter, all of the digital circuits discussed in lecture are constructed during lab with integrated circuits. In the last half of the quarter, the students construct and troubleshoot the power supplies, single stage amplifiers and cascaded amplifiers that they have designed.

ELECTRONICS LABORATORY 301

During this quarter, the student constructs and troubleshoots most of the circuits discussed in lecture. In addition, a list is issued to each student that identifies the function of many analog-digital devices. The student must design circuits from application notes and other references to perform the functions of these devices. Passive components, transistors, digital ICs and linear ICs are available for this purpose.

ELECTRONICS LABORATORY 302

The students breadboard digital circuits that are representative of the individual sections of the computer. Hands-on experience with computer hardware is achieved through extensive examination and troubleshooting of various on-site computers.

ELECTRONICS LABORATORY 303

During this quarter, the students program the various on-site computers and they practice troubleshooting with the aid of programs. Practical laboratory projects are used to develop a familiarization with the microprocessor. Microcomputer operation is explored by combining the microprocessor with IC RAMs, IC ROMs, IC asynchronous communications interface adapters, IC peripheral interface adapters, and various on-site peripheral devices. Practical experience is also gained through exposure to on-site computer peripherals.

MATHEMATICS 101

Provides the necessary background for the higher mathematics in this course. The basic fundamentals of arithmetic, which includes addition, subtraction, multiplication, division, fractions, decimals, powers, roots, scientific notation, ratio and proportion, are reviewed and applied to Ohm's Law, the power formulas, voltage divider theorems, and the reactance formulas. The calculator and its applications are also presented in this quarter.

MATHEMATICS 102

This quarter applies the Pythagorean theorem to resistive-capacitive, resistive-inductive, and resistive capacitive-inductive circuits. Basic algebra is reviewed and applied to linear equations, graphs, factoring, exponents and radicals which provides preparation for comprehension of advanced electronic formulas.

MATHEMATICS 103

The techniques for solving linear equations and story problems are emphasized through a continuation of basic algebra. The trigonometric functions are introduced and applied to simple and complex AC circuits. The mathematics of tube amplifiers is also studied this quarter which includes calculation of input and output impedances, maximum input and output signal, harmonic distortion, the value of load resistors, the value of bias resistors, and the value of bypass capacitors.

MATHEMATICS 201

This quarter provides a thorough study of common logarithms and their applications. Logarithms are used to solve multiplication, division, roots and power problems. They are also extensively applied to voltage, current and power calculations through decibel problems.

MATHEMATICS 202

This quarter provides additional study in algebra which includes transposition, binomial and trinomial factoring, and solution of multi-variable linear equations. The fundamentals of trigonometry and j operators are reviewed and utilized to perform the calculations for antenna radiation patterns.

RESIDENT COURESE (Full Time)

ELECTRONIC ENGINEERING TECHNOLOGY

Course Descriptions

MATHEMATICS 203

The binary, octal and hexadecimal numbering systems with conversion techniques between the systems are studied this quarter. Digital arithmetic and codes are also covered including Boolean algebra and Karnaugh mapping. In addition, the Thevenin, Norton and Superposition theorems are studied and applied to electronic circuit analysis. The mathematics of solid state amplifier and power supply design is also covered this quarter.

MATHEMATICS 301

This quarter provides an introduction to calculus which includes algebraic graphs, functions, limits, increments and derivatives. These early principles of calculus are applied to average and instantaneous rate of change problems including transient waveform analysis.

MATHEMATICS 302

This quarter provides additional studies in calculus with emphasis on differentiation and integration. The terminal objective of this quarter is to enable the student to pursue advanced electronics theory.

PHYSICS 301

This quarter explores the basic principles of force, motion, work, energy, power, friction, rotation, torque, gears, and pulleys which provides preparation for the mechanical aspects of electronic devices. The nature of light and the principles of optical instruments are also studied.

ENGINEERING DRAWING 101

A study and application of basic drafting techniques which includes graphic symbols, basic lines and line weights, lettering, geometrical constructions, various types of views and projections, dimensioning, notes, and a familiarization with JEC standards.

ENGINEERING DRAWING 202

This quarter applies the basic drafting techniques that were studied in Drawing 101 to schematic diagrams. Schematics of solid state devices are emphasized.

ENGINEERING DRAWING 203

The basic drafting techniques that were previously studied are applied to the layout and design of printed circuit boards. Emphasis is placed on both the quality and the size of the design.

TECHNICAL WRITING 201

The basic principles of grammar, punctuation, sentence and paragraph construction are reviewed in preparation for technical report writing.

TECHNICAL WRITING 301

During this quarter, the student will study the fundamentals of technical writing which includes methods for logical organization of ideas and a format for technical reports. Experience is achieved in this area by submitting technical reports on the laboratory projects that are conducted throughout the quarter.

COMMUNICATIONS 301

This course emphasizes the accurate and effective communication by written word of data and/or ideas. Resumes, technical and business correspondence are also studied during this quarter.

COMMUNICATIONS 302

The basic principles of oral expressions are explored during this quarter. The students receive experience in this area by giving oral presentations on technical topics. Particular emphasis is given throughout the quarter to communications within the work environment beginning with the employment interview.

RESIDENT COURSES (Full Time)

SPECIALIZED ELECTRONICS SERVICING COURSE



OBJECTIVE: The Specialized Electronics Servicing Course was developed by R.E.T.S. Electronics Schools to meet the continuing demand for trained electronics personnel to fill entry level jobs in this vast industry. Employment opportunities in the following areas are within the scope of our graduates: installation and repair of radio & T.V. systems, hi-fidelity sound systems, intrusion alarm systems, closed-circuit T.V. systems, recording systems, CB transceivers including F.C.C. license preparation, automated dispensing and copy equipment, electronic organs, and industrial instrumentation.

Since the terminal objective is employment in the service industry, this course is of an extremely practical nature. The ability of the graduate should be such that he will be immediately profitable to his employer. This is NOT a design engineering course. The mathematics included in the course is limited to that required to understand the operation of practical circuits and systems, which allows as much as possible of the available time to be devoted to practical subject matter.

OUTLINE OF TRAINING PROGRAM AND TUITION COST

Quarters	Weeks	Credit Hours	Contact Hours	Cost*
I	12	20	288	\$ 703.00
II	12	20	288	528.00
III	12	20	288	528.00
IV	12	20	288	528.00
V	12	20	288	528.00
VI	12	20	288	528.00
TOTALS				
6	72	120	1728	\$3343.00

*This includes all manuals, materials, lab and lecture fees. Budget plans are available.

RESIDENT COURSES (Full Time)

SPECIALIZED ELECTRONICS SERVICING

COURSE DESCRIPTION	CREDIT HOURS	CONTACT HOURS
SUBJECT		
QUARTER I		
ELECTRONICS 111	10	120
LABORATORY 111	5	108
MATHEMATICS 111	5	60
TOTAL HOURS FOR QUARTER	20	288
QUARTER II		
ELECTRONICS 112	10	120
LABORATORY 112	5	108
MATHEMATICS 112	5	60
TOTAL HOURS FOR QUARTER	20	288
QUARTER III		
ELECTRONICS 113	10	120
LABORATORY 113	5	108
MATHEMATICS 113	3	36
FCC LICENSE PREPARATION 111	2	24
TOTAL HOURS FOR QUARTER	20	288
QUARTER IV		
ELECTRONICS 211	10	120
LABORATORY 211	5	108
FCC LICENSE PREPARATION 112	5	60
TOTAL HOURS FOR QUARTER	20	288
QUARTER V		
ELECTRONICS 212	10	120
LABORATORY 212	5	108
COMMERCIAL SCHEMATIC ANALYZATION 111	5	60
TOTAL HOURS FOR QUARTER	20	288
QUARTER VI		
ELECTRONICS 213	10	120
LABORATORY 213	5	108
MATHEMATICS 211	2.5	30
MECHANISMS 111	2.5	30
TOTAL HOURS FOR QUARTER	20	288
TOTAL CREDIT HOURS AND CONTACT HOURS	120	1728

RESIDENT COURSES (Full Time)

SPECIALIZED ELECTRONICS SERVICING

Course Descriptions

ELECTRONICS 111

A study of the fundamental principles of electrical conduction which includes the effect of series and parallel resistors, capacitors and inductors on voltage, current and power. The principles of magnetism and electromagnetism will be explored through solenoids, alternators, generators and motors. The operating characteristics of rectifiers will be studied and applied to power supply circuits. Additionally, the student will be exposed to an introduction to solid state principles and devices.

ELECTRONICS 112

A comprehensive study of solid state circuits which includes the static and dynamic characteristics of low and high frequency amplifiers. The operation and function of basic electronics circuits, such as AF amplifiers, RF amplifiers, detectors, AGC circuits, various sinewave oscillators, mixers, antenna input circuits, various relaxation oscillators, FET amplifiers and regulated power supplies will be covered. In addition the student will study the following specialized solid state devices: SCRs, UJTs, diacs, triacs, integrated circuits (ICs), differential amplifiers and operational amplifiers.

ELECTRONICS 113

A study of basic transmitter principles and circuits which includes amplitude and frequency modulation theory, modulators, transmitter oscillators, tuned RF power amplifiers, AF amplifiers and limiters, frequency multipliers, transmission lines, basic antenna theory, and test equipment for transmitters. CB transceiver systems will also be covered.

ELECTRONICS 211

Solid state, black and white TV is thoroughly examined by extensive analysis of television tuners, IF amplifiers, sound circuits, sync circuits, AGC circuits, video amplifiers, vertical and horizontal sweep circuits, vertical and horizontal output circuits, and low and high voltage supplies. Service procedures for black and white TV will also be covered.

ELECTRONICS 212

Hi-fidelity sound systems and color TV systems will be fully explored. Audio and video recording systems and the electronic organ will also be studied with the major emphasis on the service aspects of these systems.

ELECTRONICS 213

A presentation of the building blocks of digital electronics which includes basic gates, encoders, decoders, flip-flops, counters, shift registers, multiplexers, demultiplexers, digital readouts, basic arithmetic units, and digital integrated circuits. Applications of digital electronics in intrusion alarm systems, automated dispensing systems and automated copy equipment will be covered. Additionally, systems incorporating both digital and analog technology will be studied and applied to industrial instrumentation systems.

ELECTRONICS LABORATORY 111

Resistors, capacitors, and inductors are utilized to construct DC and AC circuits, and then pertinent voltage, current and power measurements are performed. There are also laboratory projects to demonstrate the principles of electromagnetism. Halfwave, fullwave, bridge and doubler power supplies are constructed. Appropriate test equipment, such as the oscilloscope and the volt-ohm-milliammeter, are used to either troubleshoot or analyze circuit conditions.

RESIDENT COURSES *(Full Time)*

SPECIALIZED ELECTRONICS SERVICING

Course Descriptions

ELECTRONICS LABORATORY 112

A solid state superheterodyne receiver is constructed which affords the student an opportunity to test and examine many of the circuits that are discussed in lecture. Besides the circuits in the radio, various other amplifiers, oscillators, and power supplies are constructed and pertinent measurements are performed. Experiments with specialized solid state devices, such as UJTs, SCRs, diacs, triacs and linear ICs, are also performed. Practical troubleshooting techniques that utilize the signal generator, oscilloscope and VOM are emphasized throughout this quarter.

ELECTRONICS LABORATORY 113

Circuits that demonstrate the characteristics of both gas-filled and vacuum tubes will be constructed and studied. During this quarter, the student thoroughly examines CB transceivers from both a familiarization and service standpoint. The student becomes familiar with the following test and/or monitor equipment: beat frequency meters, Q meters, SWR meters, watt meters, grid-dip meters and wave absorption meters, lecher lines, modulation meters, deviation meters and frequency counters.

ELECTRONICS LABORATORY 211

During this quarter, the students are furnished a solid state TV. The laboratory projects are designed to produce an understanding of the dynamic analysis of the TV's circuits with appropriate test equipment, such as DVMs, dot bar generators, triggered sweep oscilloscopes, and sweep and marker generators. Service practice on both solid state and tube type commercial TV receivers is a requirement in this quarter.

ELECTRONICS LABORATORY 212

Extensive familiarization with color TV receiving systems and troubleshooting techniques is a requirement for this quarter. Both static and dynamic convergence adjustments must be performed along with both luminance and chroma channel alignment procedures. In addition, the student becomes familiar with the servicing techniques employed in commercial hi-fi and organ equipment.

ELECTRONICS LABORATORY 213

In the first half of the quarter, all of the digital circuits discussed in lecture are constructed during lab with integrated circuits. In the last half of the quarter, the students learn to troubleshoot and install intrusion alarm systems and various other automated systems involving both analog and digital techniques.

FCC LICENSE PREPARATION 111

Rules and regulations pertinent to the 3rd class FCC license will be covered. The successful passing of the Federal exam or its equivalent is the criterion for this credit.

FCC LICENSE PREPARATION 112

Rules and regulations pertinent to the 2nd and 1st class FCC licenses will be covered. The successful passing of the 2nd class Federal exam or its equivalent is the criterion for these credits.

MATHEMATICS 111

Provides the necessary background for the higher mathematics in this course. The basic fundamentals of arithmetic, which includes addition, subtraction, division, multiplication, fractions, decimals, powers, roots, scientific notation, ratio and proportion, are reviewed and applied to Ohm's Law, the power formulas, voltage divider theorems and the reactance formulas. The calculator and its applications are also presented in this quarter.

MATHEMATICS 112

This math applies the Pythagorean theorem to resistive-capacitive and resistive-inductive circuits. Basic algebra is taught and applied to linear equations, factoring, exponents and radicals. This provides preparation for comprehensive study of advanced applications of electronic formulas.

RESIDENT COURSES *(Full Time)*

SPECIALIZED ELECTRONICS SERVICING

Course Descriptions

MATHEMATICS 113

This quarter provides a thorough study of common logarithms and their applications. Logarithms are used to solve multiplication, division, roots and powers problems. They are also extensively applied to voltage, current and power calculations through decibel problems. The mathematics of tube amplifiers is also studied this quarter which includes calculation of input and output impedances, maximum input and output signal, harmonic distortion, the value of load resistors, the value of bias resistors, and the value of coupling and bypass capacitors.

MATHEMATICS 211

The binary, octal and hexadecimal numbering systems with conversion techniques between the systems are studied this quarter. Digital arithmetic including addition, subtraction, multiplication and division of binary numbers is also covered.

COMMERCIAL SCHEMATIC ANALYZATION 111

The student is expected to analyze unfamiliar commercial TV schematics to the extent that he will be able to answer all key questions pertinent to software-type servicing problems.

MECHANISMS 111

Principles of linkages, gears, cams, flexible connections, displacements, motions, velocities and acceleration are studied and applied to electromechanical systems.

GENERAL INFORMATION

PART TIME RESIDENT TRAINING PROGRAMS

ENTRANCE REQUIREMENTS. The applicant must have completed two years of secondary school or have an equivalent education that will be evaluated by a member of the Education Committee.

LENGTH OF COURSE. The "Applied Electronic Technology Course consists of eight phases of 13 weeks each. Classes are held 5 clock hours per day, two days per week.

CLASS DAY. A breakdown of a typical class day is as follows: approximately 2.5 clock hours lecture, approximately 2 clock hours lab training, one ten-minute break and one 20-minute lunch break.

TUITION. Tuition rates are listed in the course outlines for the part-time courses.

CLASS SIZE. The average class size at the time of printing of the Bulletin was 25 students.

REFUND POLICY. A full refund of all funds paid will be made if the applicant is rejected by the School.

A full refund of any funds paid will be made, if this refund is requested by mail and postmarked within five days after the enrollment form was signed and monies paid.

An applicant who has not applied for a refund within 5 days, and who has been accepted by the School will then be classified as an enrollee.

All funds paid by the enrollee prior to the beginning of instruction shall be refunded if the enrollee involved presents medical evidence of inability to participate in the program contracted for.

An enrollee may cancel his or her enrollment by registered mail at any time after enrolling for any reason if such cancellation is more than 30 days prior to the beginning of instruction.

An enrollee, prior to the beginning of instruction, may cancel his or her enrollment by registered mail at any time for any reason within 10 days after enrollment even though less than 30 days may remain before the beginning of instruction.

In case of cancellation of enrollment as stated above, the enrollee's obligation to the School will in no case exceed \$50.00 and monies paid to the School in excess of \$50.00 will be refunded within 30 days.

An enrollee not requesting cancellation as stated above is then classified as a student and, prior to the beginning of instruction, is only eligible for a refund of any amount paid toward registration, enrollment fee, and tuition in excess of \$100.00.

A student who starts training is only responsible for the payment of tuition for the total number of weeks entered. Absenteeism of one or two days in any week is not grounds for missing a tuition payment. Both the time and tuition for this absenteeism must be made up.

A student may withdraw at any time by notifying an official of the School. All financial obligation to R.E.T.S. must be paid in full before a satisfactory withdrawal will be granted. No transcript of official records will be furnished to, or for, any student with an unpaid financial obligation.

A student will be classified as terminated after one week's absence. Re-entrance will require an interview by School official. When it is deemed necessary for the student to drop back to a class following the one being attended the student will be required to sign a new enrollment agreement reflecting the tuition rates being paid by that class.

CREDIT FOR PREVIOUS TRAINING. Students having previous training or experience will be thoroughly, tested upon entrance and will be advanced to the highest level for which they can qualify. Tuition for any such part or period of the program of training will be adjusted by pro-rating the tuition for the credit allowed.

HOLIDAYS AND VACATIONS. The following legal holidays are observed: Memorial Day — Independence Day — Labor Day — Thanksgiving and the day following — Christmas Eve and Christmas Day — New Year's Eve and New Year's Day — Good Friday.

When the 4th of July falls on a Tuesday, the preceding Monday shall also be a holiday. When the 4th of July falls on a Thursday, the following Friday shall also be a holiday.

When Christmas Eve and New Year's Eve fall on a Tuesday, the preceding Monday shall also be a holiday. When Christmas Day and New Year's Day fall on a Thursday, the following Friday shall also be a holiday.

When Christmas Day and New Year's Day fall on a Sunday, or if the 4th of July falls on Saturday or Sunday, the following Monday shall also be a holiday.

When a holiday occurs on a scheduled day of resident training privileges, the School reserves the right to change the class schedule to another day during the same week.

WEATHER EMERGENCIES. The School reserves the right to close the School during a weather emergency or other 'acts of God'. Under these conditions, the student will not be charged with an official absence. The material that would have been covered during the closed day will be made up during the phase which ensures completion of the entire phase's scheduled material. This make up will involve your required attendance on a previously unscheduled day. There will be no phase tuition adjustments made due to the School's closing for a weather emergency.

PROGRESS RECORDS. Student Periodic Progress Reports regarding grades, attendance, and an evaluation of the student's conduct will be furnished at the completion of each phase to the student or to the person the student designates.

PART TIME RESIDENT TRAINING PROGRAMS

RELEASE OF INFORMATION. The School reserves the right to release information regarding the dates of your enrollment at this School, your address and phone number, and your last phase completed to other schools and to employers. Your written permission is required by law before the School may release any other information.

STUDENT COUNSELING. Educational objectives, grades, and attendance are reviewed prior to entering a new phase of training by a member of the faculty other than the student's instructor. If a student desires counseling between phases, the chief instructor should be contacted for an appointment.

GRADING. A letter-mark system of grading is used for recording student progress. A-Excellent, B-Good, C-Fair, D-Passing, E-Failure, INC-Incomplete.

A student who fails any subject in any phase will not be permitted to enter the next phase of training. Under these conditions the student will be required to repeat the phase of training failed. Any student who receives a grade of INC (incomplete) for any subject in any phase of training may be allowed to continue training on probation, provided arrangements are made to remove the incomplete grade within a reasonable period of time.

Students will be required to pay weekly tuition during repeat time. However, all tuition paid toward repeat time will be applied to the total cost of the training program. The student will not be charged for more than the total number of weeks in the course regardless of the total amount of time it takes to complete the course. Should a student terminate during his training program, tuition paid toward repeat time is non-refundable.

OUTSIDE STUDY ASSIGNMENTS. All students are responsible for reading and studying materials issued by their instructors. Part-time students will find that it is necessary for them to spend extra hours out of School studying assigned text material.

ATTENDANCE. R.E.T.S. believes that regular and punctual attendance is important to a high standard of work. In order to further this belief, the School has established the rule that all students must be in attendance a minimum of 90% of the scheduled class time. Any student whose absence falls below this minimum standard is liable for (1) an interruption for unsatisfactory attendance, (2) termination, or (3) recycling. All students are required to make a report to their instructor after each absence.

As we expect you to be here each day, so we expect you to be here on time. Tardiness is recorded in quarter-hour increments and is included in counting total absences. You make the record. We record it. Employers refer to it.

MAKE UP TIME. Regardless of grades or standing in class, a student must make up all missed time that is in excess of 10% of the scheduled class time. A student who misses more than 20% of the scheduled class time will not be permitted to enter the next phase of training.

ATTIRE. As we are training you for a career in electronics, we expect you to come to School dressed as you would for your future career. Students are often sent directly from the School to an employment interview — the way you look is important.

Prospective employers frequently visit the School to interview graduating seniors. It is important for all of us to create a good impression; therefore, the School requires that the student refrain from wearing tank tops, shorts, hats of any other unconventional attire during class.

CONDUCT AND DISCIPLINE. Students are expected to behave with decorum, to obey the regulations of the School. Unethical or undesirable conduct, which is inconsistent with general good order, wherever it may occur, is held to be sufficient grounds for dismissal.

The attempt of any student to present as his own any work which he has not honestly performed or to pass any examination by improper means is regarded as a most serious offense and renders the offender liable to immediate expulsion. The aiding and abetting of a student in any dishonesty is likewise held to be a grave breach of discipline.

A student failing to achieve the standards of attendance, conduct or discipline may be dismissed from the School.

Upon the written request of the student, a review board consisting of the student's instructor, a School official, and a School officer will conduct a hearing before the student is dismissed.

LEAVE OF ABSENCE. A student may be granted a temporary leave of absence if a termination notice, form 26-7-75, has been signed which specifies the date of intended return. A student who does not return on or before the date specified will forfeit all attained scholastic progress and all monies paid. A leave of absence will only be granted for a maximum of two years. If the tuition rates are increased during the leave of absence, the student will be subject to the new rates upon re-entry. Additionally, a re-entering student who elects to review material that has previously been taken must pay tuition during the review period; however, any tuition paid during the review period will be credited to the final phase of the training program. Tuition paid during the review period will not be refunded if the student elects to discontinue training.

GRADUATION REQUIREMENTS. To graduate, a student must complete all required assignments and class work with a D or better grade and maintain a 90% attendance record. Students satisfactorily completing their course will receive a certificate as an Industrial Electronics Technician upon completion of Phases I, II, III, and IV. Students completing Phases I, II, III, V, and VI will receive a certificate as a Home Entertainment Electronic Technician. Students completing Phases II, III, V, VI, VII and VIII will receive a diploma as an Applied Electronics Technician.

REVISIONS: The School reserves the right to make changes in curriculum, reset class schedules and hours, and consolidate classes.

GENERAL INFORMATION (Continued)

PART TIME RESIDENT TRAINING PROGRAMS

PLACEMENT SERVICE. R.E.T.S. maintains a placement service that is available to all its students and graduates. This service is available not only during your attendance and at the time of graduation, but at any time to an alumnus. A full-time placement officer will assist students in locating potential employers, scheduling appointments, etc. Every effort will be made to aid those students seeking employment both during and after completion of their course of study. This is not a guarantee of employment or a minimum starting salary. No one is authorized by the School to make such guarantees.

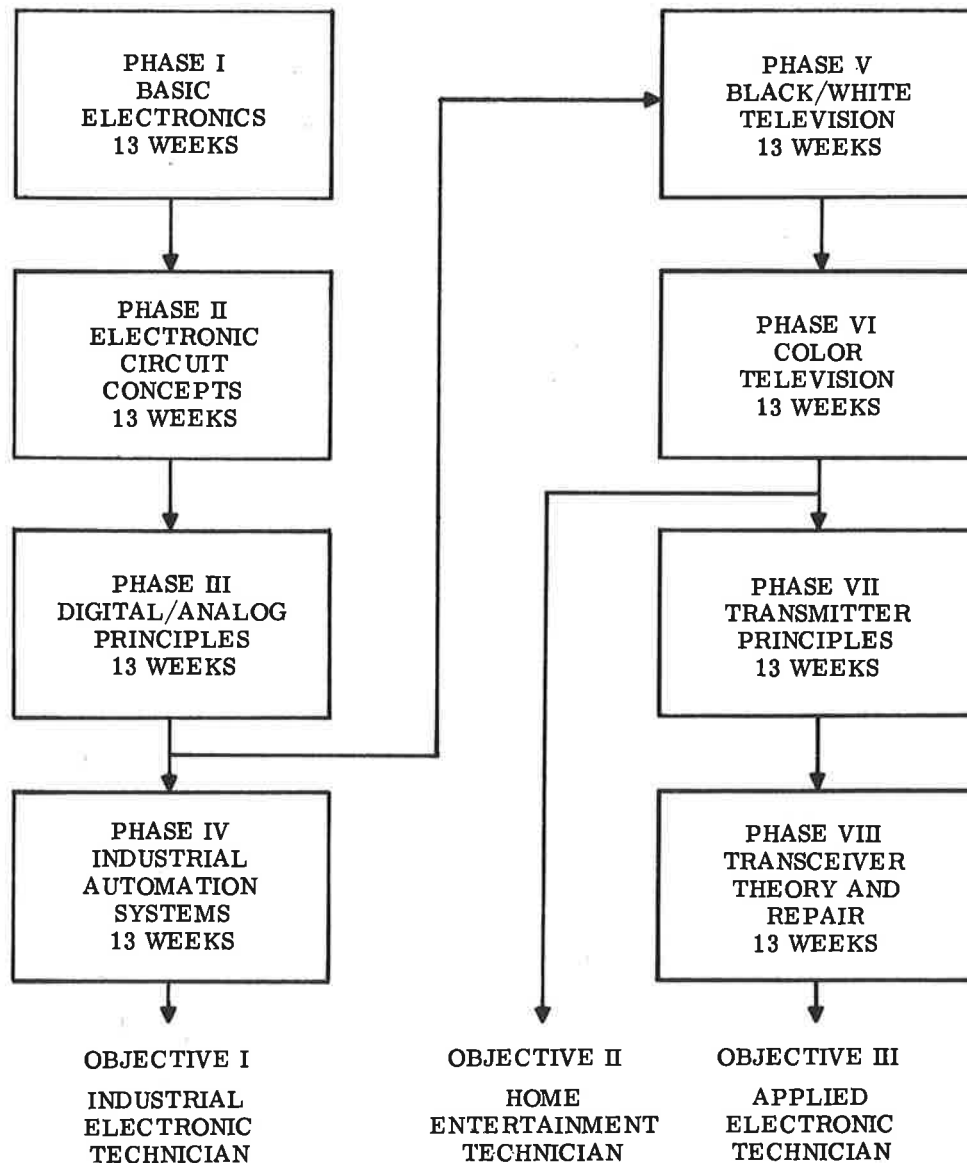
VOCATIONAL REHABILITATION PROGRAM. The cooperative effort of R.E.T.S. and the Department of Vocational Rehabilitation in many states has resulted in the training and rehabilitation of a great number of persons afflicted with physical disabilities and their subsequent entry into the field of Electronics. There they are able to earn their livelihood and become an integral part of this nationally important industry. There

are many jobs in Electronics that can be performed by the physically handicapped.

VETERANS. R.E.T.S. Electronic Schools is approved for training eligible veterans under Public Law 93-508, Chapters 34 and 35, Title 38, United States Code. Veterans, or children of veterans who are deceased, make application to the Veterans Administration prior to entering school.

PERSONAL PROPERTY. R.E.T.S. assumes no responsibility whatsoever for loss or damage to any student's personal property, or for any damage to any car; nor loss by theft of any vehicle or any of its contents, in, on, or adjacent to school property.

PARKING. A marked-off area on the east side of the building is reserved for the use of faculty and visitors. An additional area across the street is reserved for students. R.E.T.S. assumes no responsibility whatsoever for any damage to any car, nor loss by theft of any vehicle or any of its contents.



RESIDENT COURSES (Part Time)

APPLIED ELECTRONIC TECHNOLOGY

OBJECTIVES: The Applied Electronic Technology program was developed by R.E.T.S. Electronic School to provide a vehicle by which serious students could acquire comprehensive training in electronics on a part time basis. This multi-purpose program has three specific terminal objectives.

The first objective of this program is to provide a method by which an individual may obtain entry level employment in the industrial environment, or to serve as a means by which existing industrial electronic technicians can update to the current state-of-art technology, or to provide a method by which employees in unskilled occupations can obtain a lateral transfer to the electronics department within their companies. The successful completion of phases I, II, III, and IV is required to graduate from the Industrial Electronic Technician program.

The second objective is to prepare students, who are specifically interested in electronics careers in sales, installation and repair of radios, amplifiers, tape recorders, televisions, and other home entertainment equipment, for entry level employment in the field of home entertainment electronics. The successful completion of phases I, II, III, V and VI is required to graduate from the Home Entertainment Electronic Technician program.

The third objective is to produce electronics personnel with sufficient knowledge and skills to gain diversified entry level employment in electronics. Entry level employment in any field of electronics that demands a knowledge of basic electronics, analog/digital IC theory, and advanced circuits and systems are within the scope of graduates from this program. In addition, they can seek entry level employment in the field of home entertainment electronics. They can also fulfill the requirements for entry level employment in communication electronics such as broadcast engineers, repair and installation of CB radios, etc. As an alternate objective, this program provides full time engineering students with a means by which they can fulfill some of their course requirements on a part time basis; likewise, the part time student can eventually transfer credits from this program to the full time engineering program. The successful completion of phases I, II, III, V, VI, VII and VIII is required to graduate from the Applied Electronic Technician Program. Phase IV is recommended, but not required for graduation.

COST OF COURSE

Registration	\$ 150.00
Tuition per Week	\$ 25.00
Total Cost: Industrial Electronic Technician	\$1450.00
Home Entertainment Electronic Technician	\$1775.00
Applied Electronic Technician	\$2425.00
Applied Electronic Technician including the the 4th quarter industrial section	\$2750.00

RESIDENT COURSES (Part Time)

APPLIED ELECTRONIC TECHNOLOGY

COURSE OUTLINE	Weeks	Approximate Home Study Assignment Hours	Resident Training Clock Hours
	13	156	117

PHASE ONE – BASIC ELECTRONIC PRINCIPLES

A study of the fundamental principles of electrical conduction, which includes the effects of series and parallel resistors, capacitors and inductors on voltage, current and power, is accomplished by exploring the following topics:

- Generation of electricity
- Units and symbols
- Electrical laws
- Series and parallel circuits
- Measuring equipment
- Fundamentals of AC and oscilloscopes
- Inductance
- Capacitance
- Reactance
- Reasonance
- Power supplies
- Electronic systems concepts
- Soldering techniques

13	156	117
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PHASE TWO – ELECTRONIC CIRCUIT CONCEPTS

A comprehensive study of solid state principles and circuits which includes the static and dynamic characteristics of low and high frequency amplifiers. The function and operation of basic circuits is studied through the following topics:

- Solid state principles
- Audio amplifiers
- Detectors
- Automatic gain control schemes
- Filter circuits
- RF amplifiers
- Oscillators
- Signal tracing and electronic devices
- FETS
- Regulated power supplies
- Specialized solid state devices
- Blocking oscillators and multivibrators
- Vacuum tubes

RESIDENT COURSES (Part Time)

APPLIED ELECTRONIC TECHNOLOGY

COURSE OUTLINE -- CONTINUED

	Weeks	Approximate Home Study Assignment Hours	Resident Training Clock Hours
	13	156	117

PHASE THREE -- DIGITAL/ANALOG PRINCIPLES

The principles of digital and analog ICs and some of their applications in common electronic circuits and systems is studied through an examination of the following topics:

- Relay logic
- Motors and motor controls
- Sequence timing
- Basic gates and logic circuits
- Arithmetic units
- Flip-flops
- Counters and shift registers
- Digital readouts
- Multiplexing and comparators
- Solid state memory
- Transducers
- Operational amplifiers
- A to D and D to A converters

13	156	117
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PHASE FOUR -- INDUSTRIAL AUTOMATION SYSTEMS

The basic electronics and the analog/digital principles studied in previous phases are applied to common industrial circuits and systems. The following is an outline of the industrial systems that will be studied during this phase:

- Power control
- Induction and dielectric heating
- Resistance welding
- Ultrasonic systems
- Automatic process systems
- Numerical control concepts
- N/C systems
- Synchro and servo systems
- Microprocessor principles
- Processor controlled systems
- Programmable controllers
- Interfacing schemes
- Peripherals

APPLIED ELECTRONIC TECHNOLOGY

COURSE OUTLINE – CONTINUED

Weeks	Approximate Home Study Assignments Hours	Resident Training Clock Hours
13	156	117

PHASE FIVE – BLACK & WHITE TV

The principles of and service procedures for both tube-type and solid state black and white TV are thoroughly examined through the following topics:

- TV systems
- Block diagrams
- RF tuners
- Stagger-tuned circuits
- Video amplifiers
- Sync circuits
- Vertical circuits
- Horizontal circuits
- Solid state tuners
- Wide-band solid state amplifiers
- Solid state sweep circuits
- Black and white TV service

13	156	117
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PHASE SIX – COLOR TELEVISION

In this phase, the parallels between black and white TV and color TV are developed. The color television and its service procedures are thoroughly examined through the following topics:

- Color signal characteristics
- Setup procedures
- Color generators
- Video signal circuits
- Color signal circuits
- Color sync circuits
- Color picture tubes and associated circuits
- Alignment of video circuits
- Alignment of color circuits
- Specialized TV service equipment
- Focus and convergence circuits
- Tube-type color TV service
- Solid state color TV service

RESIDENT COURSES (Part Time)

APPLIED ELECTRONIC TECHNOLOGY

COURSE OUTLINE – CONTINUED

Weeks	Approximate Home Study Assignment Hours	Resident Training Clock Hours
13	156	117

PHASE SEVEN – TRANSMITTER PRINCIPLES

This phase provides preparation for the 3rd and 2nd class F.C.C. licenses which are required by the Federal government for certain types of employment in broadcast stations and to repair transmitters and transceivers. Basic transmitter principles, circuits, and F.C.C. preparation are studied through an examination of the following topics:

- DC theory review
- AC theory review
- Math as applied to AC and DC theory
- Resonance and filters
- Low and high frequency amplifiers
- Solid state devices
- Power supply theory
- Measuring devices
- Oscillators
- Basic transmitters
- Amplitude modulation systems
- Frequency modulation systems
- Motors and generators

13	156	117
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PHASE EIGHT – TRANSCEIVER THEORY AND REPAIR

This phase provides preparation for the 1st class F.C.C. license and a study of citizen-band (CB) radio and microwave systems through an examination of the following topics:

- Antennas and transmission lines
- Transmitter frequency measuring methods
- CB (citizen-band) installation and SWR checks
- Broadcast station logs and equipment
- F.C.C. (Federal Communications Commission) regulations
- Frequency synthesis and phase lock loops
- CB power and frequency measurements
- CB repair techniques
- Television broadcasting and receiving
- Microwave systems

