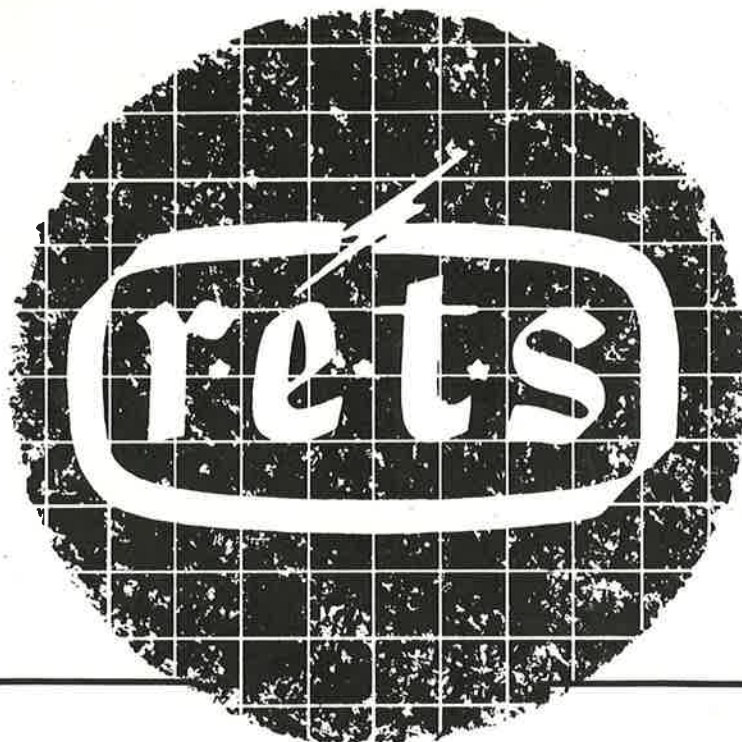


Training Specialists for Industry Since 1935



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**GENERAL
INFORMATION**
and
COURSE OUTLINES

113 72

R. E. T. S. ELECTRONIC SCHOOLS

INTERNATIONAL OFFICES
1625 E. Grand Blvd

(313) 925-5600
• Detroit, Michigan 48211

Revised JULY, 1975



R.E.T.S. ELECTRONIC SCHOOLS, INC.

OFFICERS

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Specialized Electronics Servicing Course
ROBERT ENGLE
Part Time Resident and Home Study Courses
GLENN R. WISNIEWSKI
Electronic Engineering Technology Course

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 Electronic Engineering Technicians and Specialized 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.

Among these accomplishments was the recommendation of over four hundred graduate engineers and technicians who were employed by Chrysler Missile. Many of these graduates have progressed to executive positions, including the chief engineer in charge of all Chrysler operations at Cape Canaveral.

The "Broadcast Engineers Journal," the official publication of Broadcast Engineers and Technicians, states in an article concerning R.E.T.S.: "The student learns early in his training the important element of job responsibility and is lectured on the important aspects of personality, dependability, and the art of getting along with people — his fellow workers and the employer, alike."

The article ends with the following statement: "That's the story behind R.E.T.S. and how they produce the rare combination of technical training and operational experience, the student with experience, and a real sense of responsibility to himself, his fellow workers, and his employer."

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 and engineers to fill the many positions which resulted from television's explosive growth.

During these early years, most 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 Electronic Engineering Technology Course consists of nine quarters of 12 weeks each. The Specialized Electronics Servicing course consists of four quarters of 12 weeks each. Attendance for both courses is five hours per day, five days per week.

CREDIT HOUR. One credit hour represents two contact clock hours per week for a period of twelve weeks plus outside assignments.

TRANSFER OF CREDIT. Students successfully completing the 9 quarter 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 Electronic Engineering Technology and Specialized Electronics Servicing courses.

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 form was signed and monies paid.

All funds paid by the enrollee prior to the beginning of instruction shall be refunded if the enrollee involved is involuntarily inducted into the Armed Services and does not enter school for this reason.

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.

Any 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.

Any enrollee may cancel his or her enrollment by registered mail at any time for any reason within 10 days after enrolling 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.

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.

FULL TIME RESIDENT TRAINING PROGRAMS

Any person who starts training, but terminates within the first week after starting the first quarter, will only receive a refund of any monies paid beyond 10% of the tuition for the course plus \$100.00. For those courses longer than 12 months, the tuition charges will be computed on 10% of the cost of one calendar year of training plus \$100.00, rather than on 10% of the full contract price of the course plus \$100.00.

If a student terminates training after one week but within the first quarter, the charge made by the school to the student shall be 25% of the contract price for the course plus \$100.00. For those courses longer than 12 months, the tuition charges will be computed on 25% of the cost of one calendar year of training plus \$100.00, rather than on 25% of the full contract price of the course plus \$100.00.

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.

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

A student will be classified as terminated after seven consecutive days of absence. Re-entrance will require an interview by a School official. Each case will be judged on its own merits.

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.

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. Credit for previous experience or training is granted on an entrance examination basis only. The student may be advanced to that level of training indicated as a result of the successful completion of the examination.

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 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.

Electronic Engineering Technology students are excused from classes on the last Friday 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 Friday of Quarters I and III. After the completion of Quarter II a week's vacation is scheduled.

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. He will be required to repeat the quarter of training he 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.

FULL TIME RESIDENT TRAINING PROGRAMS

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. They have been informed to make outside assignments on weekends only.

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 diploma upon graduation.

PROBATION. Excessive absence or poor grades may cause a student to be admitted to a quarter on a probational basis or allowed to remain in his present quarter on a probational basis. If the student does not fulfill the terms of his probation he may be terminated or re-cycled at the discretion of the school.

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

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. There is no charge for this service. This is not a guarantee of employment or a minimum starting salary. No one is authorized by the school to make such guarantees.

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 Institution, and to pay due respect to its officers. Unethical or undesirable conduct, which is inconsistent with general good order, wherever it may occur, is held to be sufficient grounds for dismissal.

It is the purpose of the faculty to administer the discipline of the students so as to maintain a high standard of integrity and scrupulous regard for the truth. 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 by the faculty 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.

Any student failing to conduct himself within the standards of the school according to attendance, conduct or discipline may be dismissed from the school. 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.

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 nonimmigrant alien students.

GENERAL INFORMATION (Continued)

FULL TIME RESIDENT TRAINING PROGRAMS

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, licensed by Michigan Department of Education. Our purpose is to offer education and training in electronic technology to any individual, regardless of race, sex, color, or creed, who expresses a sincere desire to undertake such training and possesses sufficient schooling together with the personal desire to successfully complete his training endeavor.

The educational objectives of R.E.T.S. Electronic Schools are:

To help students acquire knowledge and skills which are needed throughout the electronic industry and which can be utilized to gain entry level employment in that industry.

ADDITIONALLY

To aid students to further develop good personal habits and attitudes;

To help students develop communications skills;

To improve the individual's reasoning and logic capabilities;

To render personal services needed by the individual to enable him or her to achieve maximum potential.

The policies, rules, and regulations of R.E.T.S. Electronics Schools were designed with these objectives in view. Employment which will utilize the training course pursued should be the goal of every student.

OUTLINE OF TRAINING PROGRAM AND TUITION COST				
Quarter	Weeks	Credit Hours	Clock Hours	Cost
I	12	12.5	300	\$534.00
II	12	12.5	300	384.00
III	12	12.5	300	384.00
IV	12	12.5	300	384.00
V	12	12.5	300	384.00
VI	12	12.5	300	384.00
VII	12	12.5	300	384.00
VIII	12	12.5	300	384.00
IX	12	12.5	300	384.00
TOTALS				
9	108	112.5	2700	\$3,606.00*

*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	
QUARTER I		
ELECTRONICS 101	5.0	
MATHEMATICS 101	2.5	
ELECTRONIC LABORATORY 101	<u>5.0</u>	
TOTAL		12.5
QUARTER II		
ELECTRONICS 102	5.0	
MATHEMATICS 102	2.5	
ELECTRONIC LABORATORY 102	<u>5.0</u>	
TOTAL		12.5
QUARTER III		
ELECTRONICS 103	5.0	
MATHEMATICS 103	2.5	
ELECTRONIC LABORATORY 103	<u>5.0</u>	
TOTAL		12.5
QUARTER IV		
ELECTRONICS 201	4.0	
MATHEMATICS 201	2.5	
ENGINEERING DRAWING 201	2.0	
ELECTRONIC LABORATORY 201	<u>4.0</u>	
TOTAL		12.5
QUARTER V		
ELECTRONICS 202	4.0	
MATHEMATICS 202	2.5	
COMMUNICATIONS 201	2.0	
ENGINEERING DRAWING 201A	1.0	
ELECTRONIC LABORATORY 202	<u>3.0</u>	
TOTAL		12.5

RESIDENT COURSES (Full Time)

ELECTRONIC ENGINEERING TECHNOLOGY

COURSE OUTLINE – CONTINUED

SUBJECT		CREDIT HOURS
QUARTER VI		
ELECTRONICS 203	4.0	
MATHEMATICS 203	2.5	
COMMUNICATIONS 202	2.0	
ELECTRONIC LABORATORY 203	<u>4.0</u>	
TOTAL		12.5
QUARTER VII		
ELECTRONICS 301	5.0	
MATHEMATICS 301	2.5	
ELECTRONIC LABORATORY 301	<u>5.0</u>	
TOTAL		12.5
QUARTER VIII		
ELECTRONICS 302	4.0	
MATHEMATICS 302	2.5	
PHYSICS 301	1.0	
TECHNICAL WRITING 301	1.0	
ELECTRONIC LABORATORY 302	<u>4.0</u>	
TOTAL		12.5
QUARTER IX		
ELECTRONICS 303	3.0	
MATHEMATICS 303	2.5	
TECHNICAL WRITING 302	2.0	
ELECTRONIC LABORATORY 303	<u>5.0</u>	
TOTAL		<u>12.5</u>
TOTAL CREDIT HOURS UPON COMPLETION		112.5

RESIDENT COURSES (Full Time)

ELECTRONIC ENGINEERING TECHNOLOGY

Course Descriptions

ELECTRONICS 101

5.0 Credit Hours

Fundamental electrical quantities, voltage, current, resistance, power, inductance, capacitance, measuring instruments, volt-ohm-milliammeter, vacuum tube voltmeter, cathode ray oscilloscope, series circuits, parallel circuits, series parallel circuits, magnetism, motors, alternators, generators.

ELECTRONICS 102

5.0 Credit Hours

Static and dynamic characteristics of electron tubes, static and dynamic characteristics of solid state devices, essential functions of receivers, AM receivers, FM receivers, TV receivers, power supply circuits, basic voltage and power amplifier circuits, detectors, discriminators, oscillators, mixers, electronic servicing by signal injection.

ELECTRONICS 103

5.0 Credit Hours

Industrial Electronics including symbols, instrumentation, vacuum and gas filled tubes, solid state controls, sequence timing, motor controls, photoelectric devices, resistance welding, proximity controls, induction and dielectric heating, magnetic amplifiers, logic switching, ultrasonics, syncro and servomechanisms, temperature controls, inspection and sorting controls.

ELECTRONICS 201

4.0 Credit Hours

Black and white tube type and solid state television systems. Functional block diagrams, circuit analysis on sync. systems, vertical and horizontal deflection circuits, AGC, AFC, flyback power supplies, cathode-ray display devices, video and sound circuits.

ELECTRONICS 202

4.0 Credit Hours

Basic transmitter circuit functions, transmitter oscillators, tuned RF power amplifiers, push pull and parallel power amplifiers, frequency multipliers, amplitude modulation methods, frequency modulation methods, audio peak limiters and 3rd class and 2nd class FCC license preparation.

ELECTRONICS 203

5.0 Credit Hours

Antennas, transmission lines, radar, microwave technology and 1st class FCC license preparation. Basic digital logic circuits, AND gates, OR gates, NAND gates, NOR gates, encoders, decoders, transistor gate logic, half-adder, full-adders, multivibrators, up-down-ring counters, Boolean Algebra.

ELECTRONICS 301

5.0 Credit Hours

Information structure and numbers. Computer logic functions: pulse gates, and bistable multivibrators. Functional blocks; adders, complements, encoders, decoders, counters and registers. Binary arithmetic operations, computer sub-systems, words and commands, codes. Arithmetic hardware. The control sub-system, software and programming. Memories, and input/output devices.

RESIDENT COURSES (Full Time)

ELECTRONIC ENGINEERING TECHNOLOGY

Course Descriptions

ELECTRONICS 302

4.0 Credit Hours

Analysis of circuit design and measurements, AC, DC, and transient network analysis, circuit and waveform analysis, numerical control system analysis including specification, functions, and diagrams.

ELECTRONICS 303

3.0 Credit Hours

Individual application through study and research of electronic theory and practice leading to a technical semester paper.

ELECTRONIC LABORATORY 101

5.0 Credit Hours

Fundamental electrical quantities, voltage, current, power, resistance inductance, capacitance. Measuring instruments, volt-ohm-milliammeter, vacuum-tube voltmeter, cathode-ray oscilloscope, series circuits, parallel circuits, series parallel circuits, motors, alternators, generators.

ELECTRONIC LABORATORY 102

5.0 Credit Hours

Basic static and dynamic characteristics of electron tubes and transistors, half wave power supplies, full wave power supplies, basic amplifier circuits, voltage and power audio amplifiers, tuned amplifiers, detectors, oscillators, converters, amplifier circuit analysis. Electronic servicing using signal generator and V-O-M.

ELECTRONIC LABORATORY 103

5.0 Credit Hours

Measurements of static and dynamic characteristics of gas filled tubes and solid state devices used in industrial electronic equipment. Construction of phase shift circuits, sequence timing circuits, motor control circuits, photoelectric devices, proximity controls, temperature sensing controls, counting controls, synchro and servo controls.

ELECTRONIC LABORATORY 201

4.0 Credit Hours

Solid state and tube type commercial television circuit analysis and measurements. Wide band amplifier design characteristics and measurements. Solid state circuit design, construction and measurements.

ELECTRONIC LABORATORY 202

3.0 Credit Hours

Commercial communications transmitters, frequency measurements, deviation measurements, percent modulation measurements, power output measurements, audio peak limiters, checks, construction, testing, and service procedures for solid state, printed circuit AM transmitter.

RESIDENT COURSES (Full Time)

ELECTRONIC ENGINEERING TECHNOLOGY

Course Descriptions

ELECTRONIC LABORATORY 203

4.0 Credit Hours

Completion of construction of the solid state, printed circuit AM transmitter. Antenna and transmission line measurements. Microwave measurements. Basic computers, computer patch boards, logic system boards, multivibrator oscillators, gates, encoders, decoders. Basic computers, computer patch boards, logic system boards, multivibrator oscillators, gates, encoders, decoders.

ELECTRONIC LABORATORY 301

5.0 Credit Hours

Experiments with the solid state and integrated circuit breadboards for extended analysis of logic circuits, counters, serial and parallel adders, code conversion, and clock synchronizing. Demonstrations and use of the classroom digital computer system.

ELECTRONIC LABORATORY 302

4.0 Credit Hours

Technical standards for common construction practices, including printed and integrated circuits. Meters and standard measurement techniques. Evaluation of oscilloscope performance. Pulse and transient waveform examination. Demonstration of systems composed of any of the following: (a) Laser (optics), (b) microwave, (c) radar, (d) studio equipment, (e) computer hardware, (f) industrial numerical control, (g) electronic controls for electric welding.

ELECTRONIC LABORATORY 303

5.0 Credit Hours

Data collection for technical semester paper. Information gathered through experiments, measurements, observation, and operation of equipment will support the theory and descriptions set forth in the semester paper.

MATHEMATICS 101

2.5 Credit Hours

To enable the student to have the necessary background for the higher mathematics used in this course the basic fundamentals of arithmetic; fractions, decimals, powers and roots, square root, ratio and proportion are reviewed. Operations of addition, subtraction, division, and multiplication with whole numbers, decimals, and fractions are also covered as well as scientific notation (powers of ten).
the slide rule.

MATHEMATICS 102

2.5 Credit Hours

The application of mathematics to electronic circuits is emphasized. Subjects studied include: equations containing fractions, linear equations, graphs, exponents and radicals, study of angles, trigonometric functions, solution of right angle triangles, and periodic functions.

MATHEMATICS 103

2.5 Credit Hours

Mathematical application to alternating current, series and parallel AC circuits, are studied by the student in this course. Included are functions of angles, periodic functions, vectors, equations for voltage and current, resistance, inductance, capacitance, and logarithms. Also the proper use of the slide rule.

RESIDENT COURSES (Full Time)

ELECTRONIC ENGINEERING TECHNOLOGY

Course Description

MATHEMATICS 201

2.5 Credit Hours

Multiplication and division of signed numbers, numerical reductions, evaluation of algebraic expressions, multiplication of monomials by a monomial, division of multinomials, transposition, general solution of linear equations, factoring, binomial factors, simple trinomial factors are all covered in this course which is designed to give the student proficiency in algebra.

MATHEMATICS 202

2.5 Credit Hours

Fractions, equations of the first degree, exponents, roots and radicals, graphic methods, quadratic equations, systems involving quadratic equations, angles, trigonometric functions, tables of functions, and solutions of right triangles continue the study of algebra in this course.

MATHEMATICS 203

2.5 Credit Hours

This course covers the basic number systems used in computers: binary, octal, and hexa-decimal. Conversion from one number system to another; the use of these number systems by modern computers, and fundamentals of algebra used in programming languages are an integral part of this course. The use of the Bi-Tran Six demonstrator computer is also an important part of this course.

MATHEMATICS 301

2.5 Credit Hours

Functions, algebraic equations, systems of linear equations, mathematics of resistive networks, trigonometry necessary for further study in electronics comprise this course.

MATHEMATICS 302

2.5 Credit Hours

This course consists of vector algebra and complex numbers, logarithms and exponents, matrix algebra and parameters of two-part networks as applied to Electronic Engineering Technology.

MATHEMATICS 303

2.5 Credit Hours

In this course the student is introduced to the basic principles of calculus.

ENGINEERING DRAWING 201 and 201A

2.0 and 1.0 Credit Hours

Basic drafting equipment, geometry of lines, construction of straight lines, construction of curved lines, line weights and conventions, use of scales, free-hand lettering, graphic presentation of engineering data, orthographic projection, third angle projection, views, circles, ellipses and surfaces, auxiliary views, section views, isometric drawing, graphic symbols, schematic diagrams, connection of wiring diagrams.

RESIDENT COURSES (Full Time)

ELECTRONIC ENGINEERING TECHNOLOGY

Course Descriptions

PHYSICS 301

1.0 Credit Hours

Force and motion, work, energy and power, analysis of basic machines, friction, rotation, torque, power transmission. The nature of light and illumination, principles of optical instruments.

COMMUNICATIONS 201

2.0 Credit Hours

This course will review and refresh the student's knowledge of the basic principles of grammar, punctuation, sentence and paragraph construction necessary for report writing.

COMMUNICATIONS 202

2.0 Credit Hours

This course teaches the student to effectively organize his ideas in a logical and orderly manner for written presentation. The student also becomes acquainted with the basic fundamentals of technical writing. The basic principles of oral expression are also a part of this course.

TECHNICAL WRITING 301

1.0 Credit Hours

This course, a continuation of Communications 202, gives the student gainful experience in technical report writing. Based upon the student's own laboratory experiments, the student will submit technical reports on his work.

TECHNICAL WRITING 302

2.0 Credit Hours

The student, using standard examples of technical articles and papers, formal and semi-formal technical reports and proposals explores the wide variety of technical correspondence. This course requires each student to prepare and publish his own technical term paper based on the forms and illustrations learned in this class and Technical Writing 301.

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 entry level personnel trained to maintain and repair entertainment electronic equipment, such as color television, high-fidelity sound systems, tape recorders, stereo multiplex and electronic organs. Since the terminal objective of the course is employment in the service industry, the course is of an extremely practical nature. The ability of the graduate should be such that he will be immediately profitable to his employer with very little "on-the-job" training.

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, allowing as much as possible of the available time to be devoted to practical subject matter.

OUTLINE OF TRAINING PROGRAM AND TUITION COST			
Quarters	Weeks	Clock Hours	Cost
I	12	300	\$570
II	12	300	420
III	12	300	420
IV	12	300	420
TOTALS			
4	48	1200	\$1830

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

RESIDENT COURSES (Full Time)

SPECIALIZED ELECTRONICS SERVICING

COURSE OUTLINE

QUARTER ONE – Electricity, Electronics and Radio Construction

- I. Basic electricity
 - Lighting circuits
 - Basic instruments
 - Motors and generators
 - Signaling circuits (burglar alarms, fire alarms, etc.)
 - Fundamentals of house wiring
 - Meter reading – Voltmeter, Ohmmeter, and Milliammeter
 - Meter circuit applications
 - Oscilloscope applications
 - Servicing instruments and their application
 - Basic arithmetic review

- II. Basic electronics
 - Components
 - Manufacturer's codes
 - Series, parallel, and compound circuits
 - Tubes and transistors
 - Capacitance
 - Inductance
 - Reactance
 - Electronic power supplies
 - Mathematics as required to understand the above subjects

QUARTER I TOTALS: Lecture 180 hours
Laboratory 120 hours

QUARTER TWO – AM & FM Radio

- III. Block diagram, transmitters and receivers
 - Low-frequency amplifiers
 - Detectors
 - High-frequency amplifiers
 - Oscillators
 - Mixers
 - Service of AM receivers
 - Specialized service instruments
 - Math as required to understand the above subjects
 - Solid state fundamentals
 - Transistor types and construction

- IV. Basic transistor amplifier circuits
 - Biasing of transistors
 - Cascaded amplifiers
 - Power amplifiers and phase inverters
 - Wideband amplifiers

RESIDENT COURSES (Full Time)

SPECIALIZED ELECTRONICS SERVICING

COURSE OUTLINE – CONTINUED

QUARTER TWO – continued

Servicing audio equipment
AM receivers
FM receivers
Auto radios
Mathematics as required to understand the above subjects

QUARTER II TOTALS: Lecture 180 hours
Laboratory 120 hours

QUARTER THREE – Monochrome Television

V. Monochrome television fundamentals
Television systems
Cathode ray devices
Deflection oscillators
Deflection amplifiers
Video amplifiers
Wideband solid state systems
Intercarrier sound systems
Television tuners
Low voltage power supply and distribution
Sync separators

VI. Fundamentals of solid state monochrome television
Solid state VHF & UHF tuners
Solid state signal circuits
Solid state ground circuits
Gated automatic gain control systems
Sync circuits
Solid state sweep oscillators
SCR & transistorized sweep outputs
IC chips
Service of solid state television receivers

QUARTER III TOTALS: Lecture 180 hours
Laboratory 120 hours

RESIDENT COURSES (Full Time)

SPECIALIZED ELECTRONICS SERVICING

COURSE OUTLINE – CONTINUED

QUARTER FOUR – Color Television Systems, Hi-Fi Systems, and Service Practice

- VII. Color television fundamentals
 - Complete color television block diagram
 - Color purity set-up
 - Color television gray scale set-up
 - Color cathode ray tube static convergence
 - Color cathode ray tube dynamic convergence
 - Chroma amplifiers
 - Chroma demodulators
 - Color difference amplifiers
 - 3.58 mc oscillator
 - Color killer circuits

- VIII. Color sync section
 - Picture tube blanking circuits
 - Picture tube input circuits
 - Color sync alignment procedures
 - Reel-to-reel tape recorders
 - Cartridge tape decks
 - Record players
 - Hi-Fi systems
 - Electronic organs
 - Service practice
 - Mathematics as required to understand the above subjects

QUARTER IV TOTALS: Lecture 180 hours
Laboratory 120 hours

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 Color Television Servicing Course consists of four phases of 13 weeks each. Classes are held 4 hours per day, two days per week. The Technician Course in Communications Electronics consists of two phases of 13 weeks each. Classes are held 4 hours per day, two days per week.

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.

All funds paid by the enrollee prior to the beginning of instruction shall be refunded if the enrollee involved is involuntarily inducted into the armed services and does not enter school for this reason.

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.

Any 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.

Any enrollee may cancel his or her enrollment by registered mail at any time for any reason within 10 days after enrolling 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.

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

Any student who starts training is only responsible for the payment of tuition for the total number of weeks he enters. 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 a School official. Each case will be judged on its own merits.

CREDIT FOR PREVIOUS TRAINING. Credit for previous experience or training is granted on an entrance examination basis only. The student may be advanced to that level of training indicated as a result of the successful completion of the examination.

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

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.

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.

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.

PART TIME RESIDENT TRAINING PROGRAMS

A student who fails any subject in any phase will not be permitted to enter the next phase of training. He will be required to repeat the phase of training he fails. 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 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. Part-time students will find that it is necessary for them 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. They have been informed to make outside assignments on weekends only.

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.

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.

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.

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

It is the purpose of the faculty to administer the discipline of the students so as to maintain a high standard of integrity and scrupulous regard for the truth. The attempt of any student to present as his own any work which he has not honestly performed or to pass an

examination by improper means is regarded by the faculty 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.

Any student failing to conduct himself within the standards of the school according to attendance, conduct, or discipline may be dismissed from the school. 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.

LEAVES. When a student returns to School after a short leave to complete military reserve or National Guard obligations he will be permitted to re-enter at a phase of training as near the place of interruption as possible.

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 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. There is no charge for this service. 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 can 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 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 (Part Time)

COLOR TELEVISION SERVICING

OBJECTIVE: The objective of the Color Television Servicing Course is to prepare the student to enter the field of Television Servicing, both in black and white and color television sets; and to prepare him in electronic instrumentation so that he can qualify for entry level employment requiring a knowledge of electronic instrumentation.

COST OF COURSE

Registration	\$ 150.00
Tuition per Week	\$ 24.00
Total Cost	\$1398.00

This includes all manuals, materials, lab and lecture fees.

COURSE OUTLINE	Weeks	Home Study Hours	Resident Training Hours
PHASE ONE --	13	156	104
Basic Electronics			
Generation of electricity			
Units & symbols			
Electrical laws			
Series & parallel circuits			
Measuring equipment			
Fundamentals of AC & oscilloscopes			
Inductance			
Capacitance			
Reactance			
Power supplies			
Radio fundamentals			
Amplifier circuits			
Vacuum tube voltmeters			
PHASE TWO --	13	156	104
Tube Type & Solid State Radio Circuits			
Detectors			
IF amplifiers			
Mixers & oscillators			
Signal tracing			
F.M. receivers			
Solid state fundamentals			
Configuration & classes of solid state circuits			
Regulated power supplies			
Low frequency solid state amplifiers			
High frequency solid state amplifiers			
Solid state oscillators			
Transistor radio service			
High fidelity systems			

RESIDENT COURSES (Part Time)

COLOR TELEVISION SERVICING

COURSE OUTLINE – CONTINUED

	Weeks	Home Study Hours	Resident Training Hours
PHASE THREE –	13	156	104
Tube Type & Solid State Black & White T.V.			
T.V. system			
Block diagrams			
R.F. tuners			
Stagger – tuned circuits			
Video amplifiers			
Sync circuits			
Vertical circuits			
Horizontal circuits			
Transistors found in T.V. receivers			
Solid state tuners			
Wide band solid state amplifiers			
Solid state sweep circuits			
Black & white T.V. service			
PHASE FOUR –	13	156	104
Color T.V.			
Color signal characteristics			
Setup procedures			
Color generators			
Video signal circuits			
Color signal circuits			
Color sync circuits			
Color picture tubes & associated circuits			
Alignment of video circuits			
Alignment of color circuits			
Specialized T.V. service equipment			
Focus & convergence circuits			
Tube type color T.V. service			
Solid state color T.V. service			
Totals	52	624	416

RESIDENT COURSES (Part Time)

COMMUNICATIONS ELECTRONICS

OBJECTIVE: The objective of this course is to prepare the student for the examination for an F.C.C. license. Entry level employment is possible in telecasting, broadcasting and other activities necessitating an F.C.C. license. The prerequisite for entry is successful completion of the Color Television Servicing Course or its equivalent.

COST OF COURSE

Registration Fee	\$150.00
Tuition per week	\$ 24.00
Total cost	\$774.00

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

COURSE OUTLINE	Weeks	Home Study Hours	Resident Training Hours
PHASE ONE -- 13 weeks	13	156	104
Advanced Electronics Systems			
Electronic Math			
Power, Work, Efficiency			
AC Theory			
Component Parameters			
Inductance & Capacitance as Circuit Elements			
Trigonometry for Alternating Current Electricity			
Alternating Current Series and Parallel AC Circuits			
Resonant Circuits			
Vacuum Tube Characteristics			
Triodes & Diodes -- Circuit Arrangements and Functions			
Basic Solid State Devices and Circuitry			
Batteries			
Generator Types & Characteristics			
PHASE TWO -- 13 weeks	13	156	104
Transmitters			
Motor Types & Characteristics			
Power Supplies & Filters			
Oscillator Configurations & Classes			
Radio Frequency Amplifiers			
Transmitter Circuits			
A.M. Transmitters			
A.M. Receivers			
Frequency Modulation			
F.M. Receivers			
Totals	26	312	208

GENERAL INFORMATION

HOME STUDY TRAINING PROGRAMS WITH LABORATORY PRIVILEGES

Specialized training programs in Electronics are available under the R.E.T.S. combination resident and home study system. These programs are specially planned for the student who must remain fully employed while in training and consist of approximately 6 hours of home study each lesson assignment together with 4 hours of laboratory privileges for each assignment.

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

SYSTEM OF CREDITS. Credits are computed on a clock hour basis and home assignments.

CREDIT FOR PREVIOUS TRAINING. Credit for previous experience or training is granted on an entrance examination basis only. The student may be advanced to that level of training indicated as a result of the successful completion of the examination.

TUITION. Tuition rates are listed in the Course Outlines for the Electronic Service Specialist Course and the Industrial Electronics and Automation Courses.

RESIDENT ATTENDANCE PRIVILEGES. All students enrolled in a Home Study program are assigned a predetermined number of hours of laboratory privileges. Students must demonstrate proficiency in the practical aspects of their training program prior to completion.

GRADES. The minimum grade acceptable on Home Study assignments and required closed book examinations is 65%. At the completion of the required training program a certificate will be issued.

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.

All funds paid by the enrollee prior to the beginning of resident training privileges, shall be refunded if the enrollee involved is involuntarily inducted into the Armed Services and does not enter school for this reason.

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

Any 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 scheduled resident training privileges.

Any enrollee may cancel his or her enrollment by registered mail at any time for any reason within 10 days after enrolling even though less than 30 days may remain before the beginning of scheduled resident training privileges.

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.

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

Once a student starts the scheduled resident training privileges he or she is only responsible for the total number of sessions attended. Absence from a scheduled session is not grounds for nonpayment for that session. Both the payment and material must be made up if the student intends to continue.

A student who elects or is required to repeat any part of his resident training will be required to continue weekly payments during this repeat time. In no case, however, shall any student be charged tuition for more than the number of weeks attended. Nor shall any student be charged for more than the contract price of the course.

REFUND POLICY FOR VETERANS ENROLLED UNDER PUBLIC LAW 93-508 V.A. REGULATION TITLE 38 CHAPTERS 34 AND 35. "If a veteran should fail to enter the course, or withdraw or is discontinued therefrom at any time prior to completion, the refund will be an approximate pro rata portion of the charges that the length of the completed portion of the course bears to its total length. In the event of cancellation, a \$10.00 fee will be retained by the School in lieu of a registration fee to cover registration costs."

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 Eve and New Year's Day — Good Friday.

HOME STUDY TRAINING PROGRAMS WITH LABORATORY PRIVILEGES

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.

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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.

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.

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

It is the purpose of the faculty to administer the discipline of the students so as to maintain a high standard of integrity and scrupulous regard for the truth. 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 by the faculty 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.

Any student failing to conduct himself within the standards of the school according to attendance, conduct or discipline may be dismissed from the school. 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.

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.

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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.

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.

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.

HOME STUDY TECHNICIAN COURSE

ELECTRONIC SERVICE SPECIALIST

**BASIC ELECTRICITY – BASIC ELECTRONICS – INTEGRATED CIRCUITS
– INDUSTRIAL ELECTRONICS – INSTRUMENTATION –
BLACK & WHITE & COLOR TELEVISION**

OUTLINE OF TRAINING PROGRAM AND TUITION COSTS

140 LESSON TRAINING PROGRAM SCHEDULE				
PHASE	HOME STUDY ASSIGNMENT	HOURS OF RESIDENT PRIVILEGES	HOURS OF HOME ASSIGNMENT	TOTAL CLOCK HOURS
One	28	112 hours	168 hours	280
Two	28	112 hours	168 hours	280
Three	28	112 hours	168 hours	280
Four	28	112 hours	168 hours	280
Five	28	112 hours	168 hours	280
Totals	140	560 hours	840 hours	1400

Electronic Service Specialist. The objective of this course is to prepare the student for the sales, installation, and repair of radios, amplifiers, tape players, and black and white and color television. This course will also prepare the student for entry level employment in Industrial Electronics.

COURSE OUTLINE

PHASE ONE – Electricity & Electronics (Subjects & Hours)

I. Basic Electricity

- Introduction to Modern Electronics
- Introduction to Electricity
- Simple Characteristics of Electricity – I
- Units & Symbols
- Electrical Laws
- Electrical Circuits
- Magnetism & Electromagnetism
- Measuring Equipment – I
- Meter Range Switches

II. Basic Electronics

- Simple Characteristics of Electricity – II
- Characteristics of Resistance
- Measuring Equipment – II
- Applied Electricity
- Fundamentals of AC
- Oscilloscopes
- Vacuum Tube Voltmeters
- Electronic Tubes
- Inductance

III. Electronic Components

- Capacitance
- Capacitance II

HOME STUDY TECHNICIAN COURSE

ELECTRONIC SERVICE SPECIALIST

COURSE OUTLINE – CONTINUED

III. Electronic Components (Continued)

- Characteristics of Reactance
- Motors
- Solid State & Tube Rectifiers
- Power Supplies
- Meter Calibration
- Power Supplies for Modern Electronic Equipment
- Waves & Electromagnetic Waves & The Broadcast System
- Triodes, Tetrodes and Pentodes
- Meter Repair

Phase One Totals: Resident Training	112 hours
Home Assignments	168 hours

PHASE TWO – Circuit Configurations & Systems Analysis (Subjects & Hours)

IV. Circuit Configurations

- Voltage and Power Amplifiers
- Amplifier Circuit
- Resonance
- Detectors
- Coupling of Circuits
- Oscillators & Oscillator Circuits
- Mixer Operation & Input Circuits

V. Systems Analysis

- Signal Tracing & Electronic Servicing
- Signal Generators
- Introduction to Frequency Modulation (FM)
- Signal Generator Calibration
- Frequency Modulation – II
- Signal Generator Repair
- Solid State Fundamentals
- Junction Transistors
- Transistor Types & Construction
- Configuration & Classes of Solid State Amplifiers
- The Biasing of Transistors

VI. Solid State Electronics Applications

- Semiconductor Regulated Power Supplies
- Cascaded Amplifiers
- Low Frequency Solid State Amplifiers
- High Frequency Solid State Amplifiers
- Wide Band Amplifiers
- Solid State Oscillators
- Practical Solid State Circuits
- Practical Solid State Oscillator Circuits
- Transistor Servicing
- High Fidelity

Phase Two Totals: Resident Training	112 hours
Home Assignments	168 hours

HOME STUDY TECHNICIAN COURSE

ELECTRONIC SERVICE SPECIALIST

COURSE OUTLINE – CONTINUED

PHASE THREE – Tube Type & Solid State (Black & White T.V.).

VII. Introduction To T.V.

- Very High Frequency (VHF) Antennas
- Visual Monitoring Systems
- Wide-Band Amplifiers
- Deflection Systems
- High & Low Voltage Power Supplies
- The Video Signal
- T.V. Pattern Generators
- Low Voltage Power Supplies for Electronic Equipment
- RF Tuners for Television Reception

VIII. Monochrome Circuits

- IF Amplifiers in Broadcast & Industrial T.V. Reception
- Wide-Band Alignment Procedures
- Wide-Band Detectors in Electronic Equipment
- Cathode-Ray Display Devices
- Intercarrier Sound Circuits
- Sync Separation & DC Restoration
- Vertical Deflection & Vertical Oscillator Circuits
- Horizontal Oscillator & AFC Circuits
- Horizontal Deflection Circuits

IX. Monochrome Service

- AGC Circuit Operation & Test
- RF & IF Alignment
- Television Receiver Servicing
- Television Receiver Servicing – II
- Practical Service Procedures
- Generalized Television
- UHF Receiving Equipment
- Transistor Applications in Television Receivers
- Solid State T.V. Tuners
- Solid State Video I-F and Detectors

Phase Four Totals: Resident Training	112 hours
Home Assignments	168 hours

HOME STUDY TECHNICIAN COURSE

ELECTRONIC SERVICE SPECIALIST

COURSE OUTLINE – CONTINUED

PHASE FOUR – Tube Type & Solid State (Color T.V.).

X. Solid State T.V. Circuits

- Solid State Video Amplifiers
- Solid State AGC – Horizontal & Vertical SYNC
- Solid State Vertical – Sweep Systems
- Solid State Horizontal – AFC & Oscillators
- Solid State Horizontal – Output & High Voltage Sections
- Solid State Intercarrier Sound & Audio
- Service of Solid State Receivers
- Electronic Color Translation
- Setup Procedures

XI. Introduction to Color T.V.

- The Dot-Bar Generator
- Colorimetry
- Make-Up of the Color Picture Signal
- Color RF and I-F Circuits
- Band-Pass Amplifier, Color SYNC, & Color-Killer Circuits
- Color Demodulator
- The Matrix
- Color Picture Tube and Associated Circuits
- Aligning the Color Receiver

XII. Color T.V. Service

- Trouble Shooting the Color Receiver
- Servicing the Tuner – Video I-F Circuitry
- Servicing the SYNC Separator & Video Amplifier
- Servicing the Chroma – Sound – Automatic Fine Tuning Circuitry
- Servicing the Vertical – AFC – Horizontal Oscillator Circuitry
- Basic & Detailed Horizontal Output Circuit Service
- Focus & Convergence Service
- Power Supply Service
- Color T.V. Service
- Solid State Color Circuits

Phase Four Totals:	Resident Training	112 hours
	Home Assignments	168 hours

HOME STUDY TECHNICIAN COURSE

ELECTRONIC SERVICE SPECIALIST

COURSE OUTLINE – CONTINUED

PHASE FIVE – Electronics in Industrial Systems (Subjects & Hours)

XIII. Industrial Electronics – I

- Electronic Symbols
- Oscilloscopes – II
- Instrumentation
- Alternating Current
- Vacuum Tubes in Industry
- Gas Filled Tubes & Phase-Shift Devices
- Sequence Timing
- Scope Timers
- Regulators & Regulated Power Supplies
- Oscilloscope Power Supplies
- Motor Controls

XIV. Industrial Electronics – II

- Photoelectric Devices
- Resistance Welding – Part I
- Resistance Welding – Part II
- Conversion Devices & Proximity
- Induction & Dielectric Heating
- Saturable Reactors & Magnetic Amplifiers
- Automation & Logic Switching
- Solid State Power Controls

XV. Industrial Electronics – III

- Ultrasonics
- Syncros & Servomechanisms
- Temperature Controlling Devices
- Telemetry and R. F. Control
- Inspection & Sorting Controls – I
- Inspection & Sorting Controls – II
- Counting Controls
- Scope Calibration & Repair
- Maintenance

Phase Five Totals:	Resident Training	112 hours
	Home Assignments:	168 hours
Course Totals:	Resident Training	560 hours
	Home Assignments	840 hours

Total Cost of Electronic Service Specialist Course \$2450.00 – includes (a) Textbooks, (b) Lab Fees, (c) Tuition and the following test equipment: Vacuum Tube Volt Meter – Signal Generator – Oscilloscope – Dot Bar Generator and approximately a 12" Color T.V. Set. Budget Plans Available.

HOME STUDY TECHNICIAN COURSE

INDUSTRIAL ELECTRONICS AND AUTOMATION

**BASIC ELECTRICITY – BASIC ELECTRONICS – INTEGRATED CIRCUITS (I.C.'s)
INDUSTRIAL ELECTRONICS CIRCUITS – APPLICATION OF DIGITAL PRINCIPLES
INTEGRATION OF DIGITAL AND ANALOG SYSTEMS**

OUTLINE OF TRAINING PROGRAM AND TUITION COSTS

OBJECTIVE: The objective of the course is to prepare the student for the industrial application of electronics and the digital circuitry used in automated devices.

75 LESSON TRAINING PROGRAM SCHEDULE				
PHASE	HOME STUDY ASSIGNMENTS	HOURS OF RESIDENT PRIVILEGES	HOME ASSIGNMENT HOURS	TOTAL CLOCK HOURS
One	25	100 hours	150 hours	250 hours
Two	25	100 hours	150 hours	250 hours
Three	25	100 hours	150 hours	250 hours
Totals	75	300 hours	450 hours	750 hours

COURSE OUTLINE:

PHASE ONE – 25 Lessons – Basic Electronics

I. Basic Electricity

- Introduction to electricity
- Units & symbols
- Electrical laws
- Electrical circuits
- Use of the VOM
- Characteristics of resistance
- Applied electricity
- Instrumentation I

HOME STUDY TECHNICIAN COURSE

INDUSTRIAL ELECTRONICS AND AUTOMATION

COURSE OUTLINE – CONTINUED

II. Basic Electronics

- Fundamentals of AC
- Basic oscilloscope use
- Inductance
- Capacitance
- R-C circuits
- Series reactance
- Parallel reactance
- Impedance I

III. Active Devices

- Solid state & tube rectifiers
- Power supply filters
- Power supply regulators
- Triode vacuum tubes
- Vacuum tube voltage amplifier
- Vacuum tube power amplifier
- Solid state fundamentals
- Solid state amplifiers
- Linear amplifiers

Phase One Totals: Resident Training 100 hours
Home Assignments 150 hours

PHASE TWO – 25 Lessons – Introduction to Industrial Electronics

IV. Solid State Devices

- Configuration & classes of solid state amplifiers
- Biasing arrangements
- Cascaded amplifiers
- Low frequency solid state amplifiers
- Sine wave oscillators
- Blocking oscillators
- Multivibrators
- Pulse circuits

HOME STUDY TECHNICIAN COURSE

INDUSTRIAL ELECTRONICS AND AUTOMATION

COURSE OUTLINE – CONTINUED

V. Industrial Electronics Circuits

- Relay logic
- Vacuum tubes in industry
- Gas filled tubes & phase shift devices
- Solid state devices used in industry I
- Solid state devices used in industry II
- Sequence timing
- Regulators & regulated power supplies
- Instrumentation II

VI. Industrial Electronics Applications

- Motor controls
- Photo electronic devices
- Resistance welding
- Proximity controls
- Induction & dielectric heating
- Saturable reactors & magnetic amplifiers
- Ultrasonics
- Syncros & servomechanisms
- Temperature controlling devices

Phase Two Totals: Resident Training 100 hours
Home Assignments 150 hours

PHASE THREE – 25 – Introduction to Digital and Analog Logic

VII Digital

- Diode gate logic (and & or)
- Transistor gate logic (nand & nor)
- Resistor transistor logic (RTL)
- Transistor transistor logic (TTL)
- Binary numbering systems
- Other numbering systems
- Boolean Algebra
- Flip – Flops

HOME STUDY TECHNICIAN COURSE

INDUSTRIAL ELECTRONICS AND AUTOMATION

COURSE OUTLINE – CONTINUED

VIII. Applications of Digital principles

- Gate circuits
- Digital counters
- Shift registers
- Encoders & decoders
- Latching circuits
- Control circuits
- Data input systems
- Data output systems

IX. Integrating Digital & Analog systems

- Differential amplifiers
- Operational amplifiers
- Comparator circuits
- Analog data
- A to D & D to A converters
- Servo amplifiers
- Numerical control basics
- Systems I
- Systems II

Phase Three Totals:	Resident Training	100 hours
	Home Assignments	150 hours
Course Totals:	Resident Training	300 hours
	Home Assignments	450 hours

Cost: \$1,200.00 -- Budget Plan -- \$150.00 Enrollment Fee and \$14.00 weekly for a period of 75 weeks. This includes all manuals, materials, lab and lecture fees.

