

**MASSACHUSETTS
TELEVISION
INSTITUTE**

1937 - 1938

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Massachusetts Television Institute

School and Home Offices

TRANSIT BUILDING
108 MASSACHUSETTS AVENUE
BOSTON, MASS.

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A SCHOOL OF RADIO AND TELEVISION ENGINEERING

Offering:

Day Resident Courses
Evening Resident Courses
Extension Courses

Preparing for:

Radio and Television Technicians
Licensed Radio and Television Operators
Radio and Television Development Engineers
Radio and Television Broadcast Engineers

Address all correspondence to:

TRANSIT BUILDING
108 MASSACHUSETTS AVENUE
BOSTON

1937 — 1938



Massachusetts Television Institute

Entire Sixth Floor
 TRANSIT BUILDING
 108 MASSACHUSETTS AVENUE
 BOSTON, MASSACHUSETTS

CONTENTS

	Page
Massachusetts Television Institute	1
Photograph of M. T. I.	2
Faculty and Lecturing Staff	4
Advisory Board	6
The School and its Purposes	7
Equipment	8
General Information	8
School Calendar	10
Dormitories	10
Entrance Requirements	10
Description of Subjects	11

FACULTY AND LECTURING STAFF

GLENN H. BROWNING (Chief of Staff)

B. A. Cornell College, 1921; Ames College; Lydia C. Perkins Scholarship to Harvard University; Phi Beta Kappa; 2nd Lieutenant World War 1918-1919; Assistant, Cruft Laboratory, Harvard, 1923-24; Engineer for National Company, Cambridge, Mass., 1924-1926; President Browning-Drake Corporation, 1926-1927; Consulting Engineer, Doble Engineering Company; Tobe Deutschmann Company. Author: An Efficient Tuned Radio Frequency Transformer, 1926. A Theoretical and Experimental Investigation of Detection, 1927; numerous articles in radio magazines and papers; Director Trawler Hekla Inc., Boston, Mass.

DR. J. L. BARNES

Massachusetts Institute of Technology, 1928-29, S.B., S.M. Filter design work in Bell Laboratory, 1928. Scholarship at M.I.T. A.M. and Ph. D. from Princeton, 1932. Scholarship and fellowship at Princeton. Assistant instructor in mathematics at Princeton. Assistant instructor in electrical engineering at Princeton, 1933-34. Instructor in electrical engineering at M.I.T., 1935. Assistant Professor in mathematics at Tufts, 1935.

LEO L. BERANEK

Cornell College, B.A. 1936. Scholarship to Harvard, Graduate work Harvard 1936-37. Collins Radio Co. 1934.

EDWIN B. DALLIN

B. S. degree from Harvard University, 1916. Naval Experimental Station at New London during the War, 1917-18. Acme Apparatus, 1921-25. Naval Research Laboratory, Washington, D. C., 1926-29. Submarine Signal Co., 1930. Instructor in University Extension Courses.

FRANCIS J. GAFFNEY

Northeastern S.B.-E.E. 1935, graduated with honors. B. F. Sturtevant Co. 1935. National Co. 1936. Browning research 1937.

HORATIO LAMPSON

S. B. degree from M. I. T. 1915; A. M. Harvard University; Instructor in Physics, Harvard University; Assistant Radio Aid, Naval Laboratory, Navy Yard, Boston; Under-water Acoustics, Submarine Base, New London, 1918; Instructor in Annapolis, U. S. Naval Academy, 1919-1920; General Research Engineer, General Radio Company, Cambridge, Mass.; Instructor in University Extension Courses.

GEORGE A. PHILBRICK

Harvard, 1934, B. S. Graduated with honors. Atlantic Precision Co., 1934-35. The Foxboro Company, 1936-37.

ROBERT K. SAXE

Northeastern S.B.-E.E. 1936. Graduate work at Harvard 1936.

DR. ERICK A. WALKER

B.S.C. Electrical Engineering, Harvard 1932; M.S. Harvard 1933; Ph. D. Harvard 1935; 1935 Instructor Electrical Engineering, Tufts College.

The Faculty and Lecturing Staff will be Augmented
From Time to Time

The above does not include Visiting Lecturers

ADVISORY BOARD

DR. J. L. BARNES

DR. GREENLEAF W. PICKARD

DR. E. A. WALKER

Director of Registrations
BENJAMIN F. ROSS

Dean
ORVIS L. HILL

Bursar
F. B. MacLEOD

Counsel
L. GUY DENNETT

MASSACHUSETTS TELEVISION INSTITUTE

THE SCHOOL AND ITS PURPOSES.

Television with all its implied wonders has gripped the imagination of the world. Perhaps this is accounted for by the fact that "Seeing" is the most valuable function of the human system in our daily lives and the idea of "Seeing" through unlimited space thrills the imaginative mind to a greater degree than any other invention of modern times.

Modern travel by land, sea, or air is a prosaic matter these days; radio reception from all parts of the world still is a thrilling adventure, but never has there been such a unified demand for the opportunity to see as well as hear what transpires on the air. The revolutionary process from the silent films to the present perfected talking pictures is not comparable to the possibilities created by the opportunity to sit in your easy chair at home and see Televised programs of World events, plays, baseball and football games and every conceivable type of entertainment.

Men associated with this Institute have seen Television grow from a cumbersome transmitting and receiving equipment with all types of gadgets and motors showing a picture only two or three inches square to the modern type of apparatus which will reproduce electrically with clarity of detail a picture comparable in every way to home movies.

Notwithstanding the fact that Television was conceived by Nipkow as far back as 1884, it is only within the last three or four years that with the invention of the "Iconoscope", Television has been perfected to the point where it is actually commercially practical. Through its close association to the art and by the practical demonstrations which are made daily in this country by Radio Corporation of America, Philco Radio & Television Corporation and in England by Marconi, the Institute is convinced that the time is ripe to prepare the young man of today for the fascinating and profitable adventure into the Commercial Television Field.

Radio has provided and is still providing work for millions, but it cannot be compared to the *better* opportunities offered the Television Engineer. One of the serious problems to be considered is the eventual need for the trained Television man in the manufacturing and broadcasting field. The trained man who is ready, at the psychological time, is the one who will most benefit, subject only to his own ability to advance.

The Massachusetts Television Institute Inc., undertakes to train the eligible man for such a position and realizing that ability to teach is the most essential factor of its organization, has included in its Faculty the best available men with outstanding records of achievement in their particular field. The Massachusetts Television Institute Inc., is confident that with the student adapting and applying himself assiduously to his studies, he will be preparing himself for a future limited only by his own initiative.

EQUIPMENT

The Institute will have available for its students every type of test equipment necessary for the comprehensive advancement of the student.

The Institute is immediately beginning the construction of complete television pick-up and monitoring devices utilizing the latest type of iconoscope.

LIBRARY FACILITIES

The Institute will have every reasonable, available reference in its library which will as far as is practically possible cover the electronic industry. This will include information on Radio, Television, Vacuum Tubes, Cathode Ray Tubes, Neon Tubes, and Photoelectric Cells and Devices. Patent Information relating to the sciences as covered by the courses, will be included.

TRANSMITTERS

The Institute will have available for its students a complete amateur experimental Radiophone Transmitting Station, the design problems of which will be included in the course. This station will operate on the amateur bands and will be in active operation for the benefit of the students

The Institute in the near future is making plans to apply to the Federal Communications Commission for Experimental Television Broadcasting Licenses.

GENERAL INFORMATION

ENROLLMENT

WHEN TO ENROLL

Classes begin every three months, but the course is so arranged that the student begins his preparatory work immediately.

REGISTRATION

Applicants are advised to register as early as possible to insure admission for the earliest possible class.

All prospective students may either bring in personally, or mail an application blank together with a reservation fee of \$10, so that he will be assured of a place in the earliest starting class. This fee is credited towards the tuition.

TUITION

The tuition fees are as follows:

Day Resident Training 14 months	\$480.
Evening Resident Training 18 months	\$450.
Extension Training 20 months	\$390.

(or until graduated).

All of the courses include the delivery to the student from time to time parts and measuring equipment which will be used in experimental work during the course. Various types of circuits will be constructed and analyzed, and a complete Television Receiver will be built. This equipment is retained by the student on the completion of the course.

The Extension Course is designed to give the student who chooses to study at home the same practical working knowledge of Television he would receive under our personal instruction at the laboratory. Beginning with the twelfth lesson, parts and measuring equipment will be furnished from time to time which will be used in experimental work as the course progresses. Various types of circuits will be constructed and analyzed, and a complete television receiver will be built. This equipment is retained by the student on completion of the course. When a student has completed his home study, a sixty to ninety-day Resident Laboratory Training will be required. The necessary training is given the student to qualify him for the examination by the Federal Communications Commission for a "Radio & Telephone Operators License" first-class. This allows the licensee to operate any Radio Telephone Station on land or sea, and Radio or Television Broadcasting Station.

DISCOUNT

A discount of 10% may be deducted when the full amount of the tuition fee is paid, either at the time of the application or within 30 days of enrollment.

TERMS

Terms of payment may be arranged, such payments to be made by mail or in person directly to the Bursar.

PAYMENT

All checks or money orders must be made payable to the Massachusetts Television Institute Inc.

PROBATION

Massachusetts Television Institute has the right to dismiss at any time any student who does not maintain the standards of the Institute; all students are admitted on probation.

ATTENDANCE

Students must make regular attendance to classes and absence without cause will seriously affect their class rating. Students must realize that they have invested their money in a course which can reflect to their benefit only by hard work and constant cooperation with the teaching staff.

DEAN

Mr. Orvis L. Hill should be consulted on all problems which might arise to affect the students, either scholastic or personal. Mr. Hill also has supervision of all arrangements for room and board for out of town students.

HOLIDAYS and VACATIONS

Middle of August to Labor Day; October 11, Columbus Day; November 11, Armistice Day; November 27, Thanksgiving Recess; Week of December 23, Christmas Vacation; New Years Day.

LOCATION

The institute is centrally located at the corner of Boylston Street and Massachusetts Avenue with a subway entrance immediately adjacent to the building, making it readily available to all sections of suburban Boston.

DORMITORIES

The Institute has arranged for dormitories in private homes within two blocks of the Institute where students may live under the direct supervision of the House Matron.

OTHER EXPENSES

Students are furnished with all lesson material in loose leaf form together with the necessary loose leaf covers in which to preserve them. Students will be required to furnish their own tools which may be purchased by them or furnished by the Institute at cost. The total cost of such tools for the complete course will not be over \$10.

ENTRANCE REQUIREMENTS

A diploma from an accredited high school will be required for admission to the course. At least one year of Algebra must have been included in the high school course.

Students not possessing a high school diploma may be admitted to the course after passing a special examination given by the Institute. This examination will include elementary Algebra and fundamental physical problems.

GRADUATE REQUIREMENTS

The students must have a grade of 70% or better to pass his examinations.

COMPLETION OF COURSE

By continual application it may be possible for some students, who have had some previous experience, to complete their course in a shorter time than stated on the application blank. Such students will be given every facility for rapid advancement.

FAILURES

Should a student fail in his examinations he will be required to take another examination before he can continue.

PLACEMENTS

The Massachusetts Television Institute does not guarantee positions. The Institute, however, will lend students every assistance in securing employment in the Radio and Television industry.

To insure the proper contacts for positions for its graduate students the school will maintain relations with employment agencies in various parts of the country, and with all prominent manufacturers in the industry.

It is planned to have representatives of allied industries visit the Institute from time to time and outstanding students will be brought to the attention of such representatives.

ADVISORY SERVICE

Students should have no hesitation at any time in bringing their problems either to the Dean or the Technical Staff. Students will undoubtedly find situations where counsel is necessary and in such cases should it be a technical problem the Staff will lend every effort to help a student through his difficulty. It should be impressed upon students that if at any time during the course of their study they find problems which are not quite clear it is to their own advantage as well as the advantage of the Institute that they seek advice promptly.

DIPLOMAS AND DEGREE

The Institute will issue a Radio and Television Diploma to such students who have satisfactorily completed the course.

OPERATOR'S LICENSE

The Institute will lend every assistance to students desiring a First-Class Radio and Telephone Operator's License. To obtain such a license the student under the rules and regulations of the Federal Communications Commission must take a special examination.

BRIEF OUTLINE OF CURRICULUM

The lessons in the Massachusetts Television Institute Inc., Television Course will consist of several sections each; for instance, in the first few lessons the topics to be studied will be electrical mathematics, physics, and electrostatics. It is the purpose of the Institute, in the initial lessons, to give a sound scientific foundation which is absolutely essential if the student is to do any independent thinking or constructive work after completing the course.

Due to the lack of space to fully outline all of the topics to be studied at the Massachusetts Television Institute, we are confining our outline of topics to those subjects which must be completed before the student actually begins his laboratory Resident Training.

A full outline of the subjects to be covered will be available for the students upon the completion of the work as outlined below:

LESSON NO. 1

- Section I** The study of television at M. T. I.
- Section II** Electrical mathematics.
 - (A) The reasons for the study of mathematics in a television course.
 - (B) Graphical representation of the numerical system.
 - (C) Simple equations.
 - (D) Graphs.
- Section III** Physics.
 - (A) Metric system of measurements.
 - (B) Introduction to the atomic theory of matter.
- Section IV** Electrostatics.
 - (A) Concept of electrical charges.
 - (B) Electrostatic fields of force.
 - (C) Potential.

LESSON NO. 2

- Section I** Electrical mathematics.
(A) Simultaneous equations.
- Section II** Physics.
(A) Force and Motion.
(B) Torque.
- Section III** Electrostatics.
(A) Equal potential lines of force.
(B) Capacity.

LESSON NO. 3

- Section I** Electrical mathematics.
(A) Involution.
(B) Binomial theorem.
- Section II** Physics.
(A) Work and energy.
(B) Newton's laws.
- Section III** Electrostatics.
(A) Conductors and insulators.
(B) Dielectric stress.
(C) Density of charge.

LESSON NO. 4

- Section I** Electrical mathematics.
(A) Evolution and laws of exponents.
(B) Radicals.
(C) Concept of imaginaries.
- Section II** Physics.
(A) Wave motion.
(B) Sound phenomena.
- Section III** Electrostatics.
(A) Condensers.
(B) Properties of dielectrics.

LESSON NO. 5

- Section I** Electrical mathematics.
(A) Quadratic equations.
- Section II** Physics.
(A) Doppler's principle.
(B) Interference, resonance, and reflections.
- Section III** Electrostatics.
(A) Principles of electron beam reflection as utilized in television.

LESSON NO. 6

- Section I** Electrical mathematics.
(A) Angles and angle functions.
- Section II** Physics.
(A) Sonorous Bodies.
(B) Harmonics and Musical Sounds.
(C) The Ear and its response to sound.
- Section III** Direct Current.
(A) Electron theory of matter as applied to the conduction of electricity.
(B) Potential current and resistance.

Students will be required, at the end of six weeks, (or sooner at the discretion of the faculty) to take an examination on the above six lessons, and upon receiving a passing mark, will be eligible for the regular laboratory instruction.