82-109-PGE

613.1 (P)

PACIFIC GAS AND ELECTRIC COMPANY

PG&E 245 MARKET STREET • SAN FRANCISCO, CALIFORNIA 94106 • (415) 781-4211 • TWX 910-372-6587

August 27, 1982

Local Union No. 1245
International Brotherhood of
Electrical Workers, AFL-CIO
P. O. Box 4790
Walnut Creek, California 94596

Attention: Mr. Jack McNally, Business Manager

Gentlemen:

Company proposes, pursuant to Section 304.4 of the Physical Agreement, to establish the classification of Apprentice Electrical Technician in General Construction and to establish a single wage rate for the classification of Electrical Technician which shall be $623.50 per week.

Company further proposes, pursuant to Section 109.2 of the Physical Agreement, to establish the attached training programs for employees in the Apprentice Communication Technician, Apprentice Electrical Technician, and Apprentice Instrument Technician classifications in General Construction. The provisions of the proposed training programs shall be subject to the provisions of the General Construction Master Apprenticeship Agreement.

Admittance to each apprenticeship shall be in accordance with Titles 305 and 306 of the Physical Agreement; however, promotions to and demotions from the subject classifications shall be administered on a systemwide basis (without reference to the established Geographic Areas).

A minimum score of 70 percent on the entrance exam shall be required. An employee who has failed on the first attempt will be eligible to be retested on such test in the following manner, provided the employee is again the otherwise successful bidder:

2nd Testing - Three months, or thereafter, following the date of the first testing.

3rd Testing - Six months, or thereafter, following the date of the second testing.

4th Testing - Six months, or thereafter, following the date of the third testing, provided that the employee is able to show satisfactory evidence that the employee has prepared himself or herself to pass the test.

Failure of an employee to provide appropriate documentation as required above will release the Company from any further obligation to retest or to consider the employee for future vacancies in the classification.

The above testing schedule will apply to all employees who are tested after the effective date of this agreement.

When vacancies exist in more than one apprenticeship classification, employees' personal preference shall be considered. Selection for 2391 Apprentice Communication Technician, 2401 Apprentice Electrical Technician, and 2419 Apprentice Instrument Technician positions shall be in accordance with the provisions of Subsection 305.5(a) of the Physical Agreement. The Electrician and Apprentice Electrician classifications shall both be considered next lower in the normal line of progression to the Apprentice Communication Technician, Apprentice Electrical Technician, and Apprentice Instrument Technician classifications for the purposes of Subsection 305.5(a). If there is no Electrician or top step Apprentice Electrician who is interested in, and qualified for, any of the foregoing apprenticeship vacancies, selection for such position shall be made from qualified and interested employees in other classifications or categories.

The proposed wage schedule for each of the apprenticeships is as follows:

Start	- $532.30
End 6 Months	- $540.30
End 1 Year	- $552.35
End 18 Months	- $569.15
End 2 Years	- $587.40
End 30 Months	- $603.80

Journeymen Electricians entering any of the three-subject apprenticeships will maintain their journeyman wage rate and shall receive no progressive wage increases until such time as their progression through the apprenticeship training program merits a wage higher than their current rate.

All Electricians currently performing the functions of a General Construction Apprentice Electrical Technician shall be reclassified to Apprentice Electrical Technicians. Each such employee shall be placed in the apprenticeship at the level commensurate with time spent in the Electrical Test Group, and shall be allowed to progress according to the provisions of the General Construction Master Apprenticeship Agreement. Before progressing to journeyman, each such employee must successfully complete the Advanced Relay and Vectors Course and the Electronics Course. (Such an employee's progression through the apprenticeship, to top step, will not be delayed due to failure to meet these standards.)

There are currently four Electricians working in the Electrical Test Group. As per the above, their placement will be as follows:

a. R. V. Forgey (hired December 20, 1973) entered the group on February 21, 1982. He will be placed in the second step of the Apprentice Electrical Technician Training Program. His next PWI will occur on February 21, 1983.

b. M. D. Hale (hired April 24, 1978) entered the group on July 6, 1982. He will be placed in the first step of the Apprentice Electrical Technician Training Program. His next PWI will occur on January 6, 1983.

c. R. A. Hegland (hired August 22, 1973) entered the group on January 26, 1982. He will be placed in the second step of the Apprentice Electrical Technician Training Program. His next PWI will occur on January 26, 1983.

d. R. M. Pasaak (hired June 5, 1974) entered the group on May 3, 1982. He will be placed in the first step of the Apprentice Electrical Technician Training Program. His next PWI will occur on November 3, 1982.

The above employees will, however, be held at the Electrician's rate of pay (currently $587.40 per week) until such time as they would otherwise attain a higher rate of pay in their normal progression through the apprenticeship program.

All incumbent Apprentice Instrument Technicians shall receive credit for all time spent in the Apprentice Instrument Technician classification, shall receive the newly established wage therefor, and shall be allowed to progress according to the provisions of the General Construction Master Apprenticeship Agreement. Before progressing to journeyman, all incumbent Apprentice Instrument Technicians must have successfully completed the Basic Electricity and Basic Electronics Courses and must have successfully passed all established academic courses. (Such an incumbent's progression through the apprenticeship, to top step, will not otherwise be delayed due to failure to meet these standards.) Upon the signing of this agreement, all incumbents will be given one opportunity to challenge any academic course. Incumbents currently in the fifth or sixth wage steps will be allowed to progress to the journeyman classification and be allowed an additional six months or 12 months, respectively, in which to meet the established Standards of Achievement. At the end of such amount of time, further extensions will be governed by Subsection D(6) of the General Construction Master Apprenticeship Agreement.

All incumbent Apprentice Communication Technicians shall receive credit for all time spent in the Apprentice Communication Technician classification, shall receive the newly established wage therefor, and shall be allowed to progress according to the provisions of the General Construction Master Apprenticeship Agreement. Before progressing to journeyman, all incumbent Apprentice Communication Technicians must have successfully completed the Power Line Carrier and Mobile Radio Schools at Davis and must have successfully passed all established academic courses. (Such an incumbent's progression through the apprenticeship, to top step, will not otherwise be delayed due to failure to meet these standards.) Upon the signing of this agreement, all incumbents will be given one opportunity to challenge any academic course. Incumbents currently in the fifth or sixth wage steps will be allowed to progress to the journeyman classification and be allowed an additional six months or 12 months, respectively, in which to meet the established Standards of Achievement. At the end of such amount of time, further extensions will be governed by Subsection D(6)(b) of the General Construction Master Apprenticeship Agreement.

The Letter Agreement dated July 12, 1972, provides that General Construction employees are covered under Paragraphs G-11 and H of the Division Master Apprenticeship Agreement when they bid or transfer to Division jobs and are subject to, or later become subject to, the terms of the Master Apprenticeship Agreement.

For example, an employee, in a Division, who has participated in a General Construction apprenticeship program will be considered as having exercised one of the two opportunities to participate in an apprentice program allowed under Paragraph G-11 of the Master Apprenticeship Agreement and if a General Construction apprentice bids to a Division apprenticeship, he will be considered as having exercised his rights under Paragraph H of the Master Apprenticeship Agreement.

The above conditions will be waived when an apprentice or a journeyman enters one of the technical apprenticeships. The Apprentice Technician may exercise his rights under Paragraphs G-11 and H of the Division Master Apprenticeship Agreement anew.

If you are in accord with the foregoing and the attachment and agree thereto, please so indicate in the space provided below and return one executed copy of this letter to the Company.

Yours very truly,

PACIFIC GAS AND ELECTRIC COMPANY

By _____
Manager of Industrial Relations

The Union is in accord with the foregoing and the attachment and it agrees thereto as of the date hereof.

LOCAL UNION NO. 1245, INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS, AFL-CIO

Nov 9, 1982

By _____
Business Manager

GENERAL CONSTRUCTION STATION DEPARTMENT
GUIDELINES FOR THE
APPRENTICE COMMUNICATION TECHNICIAN TRAINING PROGRAM

I. Objective of the Apprentice Communication Technician Training Program

The need for trained and fully qualified employees to accomplish the duties of the Journeyman Communication Technician in a manner consistent with Company's Standards of competence, Safety and Performance has resulted in the establishment of this program which combines extensive on-the-job and related academic training. The systematic acquisition of knowledge and skill provides the employee in training the means to attain self-confidence, assuredness and satisfaction in his or her work, and also insure a means to performing Company work efficiently, correctly, and safely.

II. Training

Admittance to apprenticeship is gained by demonstrated technical ability and a minimum score of 70% on the entrance examination. In addition, a valid FCC-General Radiotelephone Operator's License, (formerly second class) is required. The apprenticeship is divided into six time periods, coinciding with the wage steps, for job training. An attached schedule defines the assignment of duties and work procedures which shall be provided in each of the time periods. The amount of time or units of work indicated in the schedule are sufficient to permit the apprentice to develop proficiency in the duty or work procedure, but should not be considered absolutely inflexible.

Additionally the amount of "on-the-job" training as defined by this schedule shall be dependent on the extent such duties are performed by Journeymen where the apprentice is headquartered. Duties not performed by Journeymen at the headquarters, and therefore not available in the training program, shall be noted in the training record. Progression through the apprenticeship or advancement to Journeyman shall not be deterred should there be deficiencies caused by such situations.

The schedule also specifies training periods in which the apprentice shall receive related academic or class training.

A. General Guidelines

1. It is intended that specified training shall be afforded the apprentice as early in each training period as is practicable.

2. Hours shown on the schedule do not include travel time to reach the place where training is to be given; however, the hour shown do provide for the necessary preparation of tools and equipment.

3. As a general practice, apprentices shall be trained by working with qualified Journeyman or a top-step apprentice who is proficient in the work in progress.

4. Progressive work experience in appropriate phases of technician work will be provided throughout all of the periods of the apprenticeship in accordance with the attached schedule.

5. The work assignments in the period of training shall be those which will provide the apprentice basic knowledge of, and confidence in, the equipment and the procedures specified for that period within limits imposed by the availability of work. Assignments shall become progressively more complex as the apprentice gains knowledge and capability.

Apprentices may be assigned work without direct supervision after having been instructed and trained on the duties or work procedures required, having performed such work under direct supervision, and being deemed capable of performing such work safely.

6. Notices

(a) Apprentices scheduled to attend centralized training programs (classroom) shall be given at least 4 weeks notice of such schedules. Such notifications shall be made by the apprentices' supervisors.

(b) If an apprentice does not maintain acceptable on-the-job or academic performance level, notice shall be given as provided for in the Section D of the Master Apprenticeship Agreement.

B. Guidelines for Training Periods

1. 0 to 6 Months' Step

During this first period, the apprentice shall learn the operation and care of tools and equipment used by the Communication Technician, and shall become familiar with related work.

Apprentices shall be required to become familiar with the many various standards, general orders and regulations applicable to technical work.

Apprentices shall experience the duties of an Communication Technician as indicated for the 0 - 6 months' period on the attached schedule.

During this period the trainee shall learn, on his or her own time, the following academic courses: Telephone Fundamentals.

(a) A test will be given at the conclusion of the course. Should the apprentice fail to achieve a passing score, written notice of the deficient areas will be given.

(b) After failure, but no sooner than one month following the date of the initial test, the apprentice shall be allowed to retake the test upon request. A maximum of three retests will be allowed, spaced no less than one month apart.

(c) Apprentices shall complete the course and pass the agreed-upon test not later than the end of the 6th month of training, regardless of the number of retests requested. Failure to meet this Standard of Achievement will be in accordance with the Master Apprenticeship Agreement.

2. 7 - 12 Months' Step

Apprentices shall continue to perform the duties of the prior period and, in addition, shall experience the duties outlined in the 7 - 12 months' period on the attached schedule.

During this period the trainee shall learn on his or her own time the following academic courses: Multiplex Fundamentals.

(a) A test will be given at the conclusion of each course and should the apprentice fail to achieve a passing score, written notice of the deficient areas will be given.

(b) Retesting opportunities shall be in accordance with the schedule outlined in Paragraph 1b of these guidelines.

3. 13 - 18 Months' Step

The apprentice shall continue to perform the duties specified for prior periods and, in addition, shall experience the duties outlined on the schedule for this period.

As early as possible in this training period, the apprentice shall be assigned to the POWER LINE CARRIER School for classroom training and testing.

(a) A test will be given at the conclusion of the course and should the apprentice fail to achieve a passing score, written notice of the deficient areas will be given.

(b) Retesting opportunities shall be in accordance with the schedule outlined in Paragraph 1b of these guidelines.

4. 19 - 24 Months' Step

Apprentice shall continue to work as provided in the prior periods and, in addition, shall experience the duties outlined on the schedule for this period. The apprentice shall demonstrate proficiency in use of tools and test equipment on all types of communication equipment.

As early as possible in this training period, the apprentice shall be assigned to the MOBILE RADIO School for classroom training and testing.

(a) A test will be given at the conclusion of each course and should the apprentice fail to achieve a passing score, written notice of the deficient areas will be given.

(b) Retesting opportunities shall be in accordance with the schedule outlined in Paragraph 1b of these guidelines.

5. 25 - 30 Months' Step

The apprentice shall continue to work as provided in the prior periods and, in addition, will learn the duties outlined on the attached schedule for the appropriate period. The apprentice shall gain increased proficiency in the use of tools and test equipment by hands-on experience.

During this period the trainee shall learn on his or her own time the following academic courses: Digital Fundamentals.

(a) A test will be given at the conclusion of each course and should the apprentice fail to achieve a passing score, written notice of the deficient areas will be given.

(b) Retesting opportunities shall be in accordance with the schedule outlined in Paragraph 1b of these guidelines.

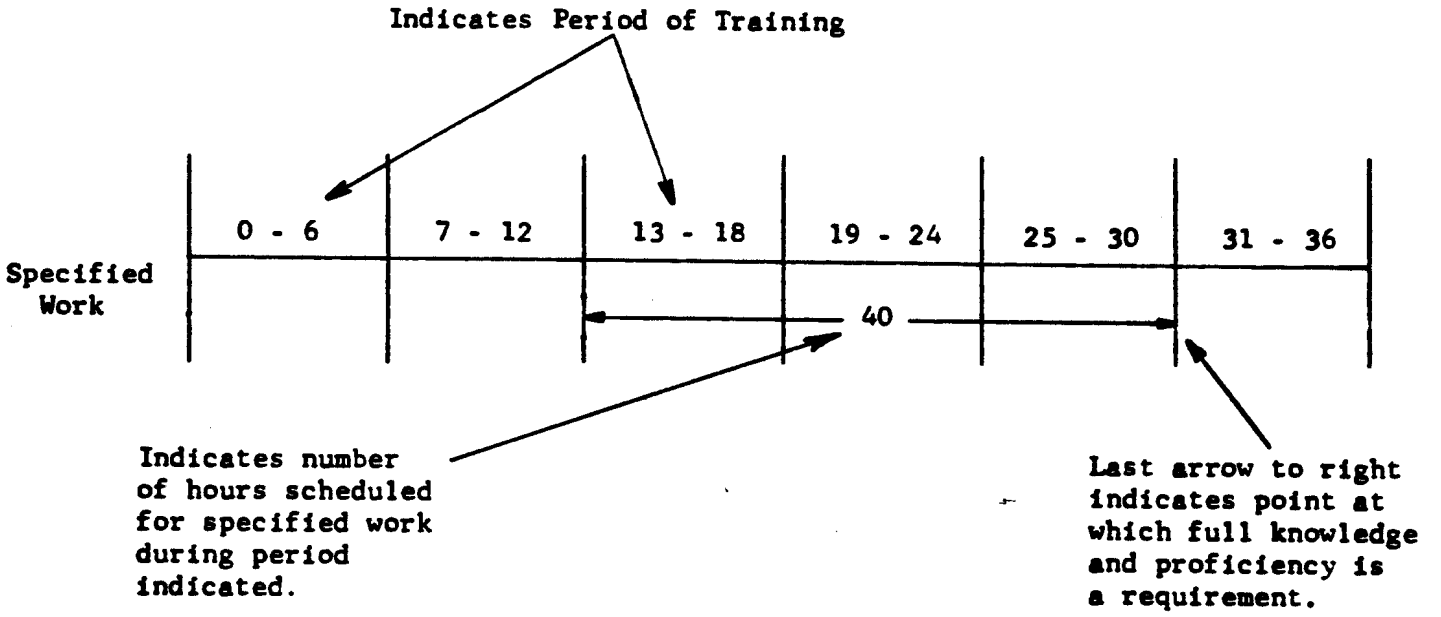
6. 31 - 36 Months' Step

Apprentice shall continue to work as provided in the prior periods and, in addition, will learn the duties outlined on the attached schedule for the appropriate period. The apprentice shall gain increased proficiency in the use of tools and test equipment by hands-on experience.

C. Records

1. It shall be the responsibility of each apprentice to maintain his or her own records in collaboration with the Communication Supervisor to whom the apprentice is assigned. Upon completion, each periodic record shall be submitted to the Education Supervisor.

GUIDE ON USE OF THE SCHEDULE



SCHEDULE

ACADEMIC ASSIGNMENT MONTHS	0-6	7-12	13-18	19-24	25-30	31-36
Telephone Fundamentals (Home Study)	40					
Multiplex Fundamentals (Home Study)		48				
Power Line Carrier			40			
Mobile Radio				40		
Digital Fundamentals (Home Study)					56	
"ON-THE-JOB" ASSIGNMENTS HOURS						
1. Safety	←	←	48	←	←	⊖
2. Install Microwave Terminals		←	←	80	←	⊖
3. Install Microwave Antennas		←	←	80	←	⊖
4. Preliminary Microwave Testing			←	←	60	⊖
5. System Microwave Testing				←	80	⊖
6. Wiring Standards Microwave Equipment		←	40	⊖		
7. Wiring Standards Multiplex Equipment		←	40	⊖		
8. Wiring Standards Dial Equipment		←	120	⊖		
9. Wiring Standards Station Equipment	←	100	⊖			
0. Wiring Standards Cable Splicing	←	40	⊖			
1. Wiring Standards Battery Systems		←	40	⊖		
2. Install Dial Equipment Exchanges		←	150	←	⊖	
3. Test Dial Equipment Exchanges		←	80	←	⊖	
4. Install Dial Equipment Key Telephones	←	120	←	⊖		
5. Test Dial Equipment Key Telephones	←	100	←	⊖		

SCHEDULE

"ON-THE-JOB" ASSIGNMENTS MONTHS	0-6	7-12	13-18	19-24	25-30	31-36
"ON-THE-JOB" ASSIGNMENTS HOURS						
16. Install Dial Equipment Telephones	←	80	→	⊕		
17. Test Dial Equipment Telephone Operation	←	60	→	⊕		
18. Install Multiplex Equipment			←	→	40	→ ⊕
19. Preliminary Testing Multiplex Equipment			←	→	60	→ ⊕
20. System Testing Multiplex Equipment				←	40	→ ⊕
21. Install Data Systems Alarm Equipment			←	→	20	→ ⊕
22. Install Data Systems Telemetering			←	→	20	→ ⊕
23. Install Data Systems Supervisory			←	→	20	→ ⊕
24. Preliminary Testing Data Systems			←	→	20	→ ⊕
25. System Testing Data Systems			←	→	20	→ ⊕
26. Mobile Radio Installation				←	80	→ ⊕
27. Mobile Radio Testing				←	120	→ ⊕
28. Mobile Radio Troubleshooting				←	120	→ ⊕
29. Power Line Carrier Preliminary Testing				←	60	→ ⊕
30. Power Line Carrier System Testing				←	60	→ ⊕

APPRENTICE COMMUNICATION TECHNICIAN "ON-THE-JOB" TRAINING (HOURS)

NAME _____ S.S. No. _____ START DATE _____

ON-THE-JOB ASSIGNMENTS	0-6 MONTHS	7-12 MONTHS	13-18 MONTHS	19-24 MONTHS	25-30 MONTHS	31-36 MONTHS
1. SAFETY	48					
2. INSTALL MICROWAVE TERMINALS		80				
3. INSTALL MICROWAVE ANTENNAS		80				
4. PRELIMINARY MICROWAVE TESTING			60			
5. SYSTEM MICROWAVE TESTING				80		
6. WIRING STANDARDS MICROWAVE EQUIPMENT		40				
7. WIRING STANDARDS MULTIPLEX EQUIPMENT		40				
8. WIRING STANDARDS DIAL EQUIPMENT		120				
9. WIRING STANDARDS STATION EQUIPMENT	100					
0. WIRING STANDARDS CABLE SPLICING	40					
1. WIRING STANDARDS BATTERY SYSTEMS		40				

Mark out one square for each hour of satisfactory on-the-job training.

APPRENTICE COMMUNICATION TECHNICIAN "ON-THE-JOB" TRAINING (HOURS)

NAME _____ S.S. No. _____ START DATE _____

ON-THE-JOB ASSIGNMENTS	0-6 MONTHS	7-12 MONTHS	13-18 MONTHS	19-24 MONTHS	25-30 MONTHS	31-36 MONTHS
12. INSTALL DIAL EQUIPMENT EXCHANGES		150				
13. TEST DIAL EQUIPMENT EXCHANGES		80				
14. INSTALL DIAL EQUIPMENT KEY TELEPHONES	120					
15. TEST DIAL EQUIPMENT KEY TELEPHONES	100					
16. INSTALL DIAL EQUIPMENT TELEPHONES	80					
17. TEST DIAL EQUIPMENT TELEPHONE OPERATION	60					
18. INSTALL MULTIPLEX EQUIPMENT			40			
19. PRELIMINARY TESTING MULTIPLEX EQUIPMENT			60			
20. SYSTEM TESTING MULTIPLEX EQUIPMENT				40		
21. INSTALL DATA SYSTEMS ALARM EQUIPMENT			20			

Mark out one square for each hour of satisfactory on-the-job training.

APPRENTICE COMMUNICATION TECHNICIAN "ON-THE-JOB" TRAINING (HOURS)

NAME _____ S.S. No. _____ START DATE _____

ON-THE-JOB ASSIGNMENTS	0-6 MONTHS	7-12 MONTHS	13-18 MONTHS	19-24 MONTHS	25-30 MONTHS	31-36 MONTHS
22. INSTALL DATA SYSTEMS TELEMETERING				20		
23. INSTALL DATA SYSTEMS SUPERVISORY				20		
24. PRELIMINARY TESTING DATA SYSTEMS				20		
25. SYSTEM TESTING DATA SYSTEMS				20		
26. MOBILE RADIO INSTALLATION				80		
27. MOBILE RADIO TESTING				120		
28. MOBILE RADIO TROUBLESHOOTING				120		
29. POWER LINE CARRIER PRELIMINARY TESTING				60		
30. POWER LINE CARRIER SYSTEM TESTING				60		

Mark out one square for each hour of satisfactory on-the-job training.

APPRENTICE COMMUNICATION TECHNICIAN MONTHLY REVIEW RECORD

NAME_____ S.S. No._____ START DATE_____

O.	COMMENTS	INITIALS		MO.	COMMENTS	INITIALS	
1				19			
2				20			
3				21			
4				22			
5				23			
6				24			
7				25			
8				26			
9				27			
10				28			
11				29			
12				30			
13				31			
14				32			
15				33			
16				34			
17				35			
18				36			

REMARKS:

On the line corresponding to the assignment on the other side of this form, the should insert a number (1 or 2) according to the code shown below. This should then be initialed. When the appropriate number is 3, both Supervisor and Apprentice should sign on the right, and the date should be inserted.

(1) Has a working knowledge of this assignment, but needs much more experience.
(2) Has a good knowledge of this assignment, but needs a little more experience to become proficient.
(3) I consider this man to be proficient in this assignment.

	Supervisor	Apprentice	Date Qualified
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
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10.			
11.			
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GENERAL CONSTRUCTION STATION DEPARTMENT
GUIDELINES FOR THE
APPRENTICE ELECTRICAL TECHNICIAN TRAINING PROGRAM

I. Objective of the Apprentice Electrical Technician Training Program

The need for trained and fully qualified employees to accomplish the duties of the Journèyman Electrical Technician in a manner consistent with Company's Standards of competence, Safety and Performance has resulted in the establishment of this program which combines extensive on-the-job and related academic training. The systematic acquisition of knowledge and skill provides the employee in training the means to attain self-confidence, assuredness and satisfaction in his or her work As a result, Company work is performed efficiently, correctly, and safely.

II. Training

Admittance to apprenticeship is gained by demonstrated technical ability and a minimum score of 70% on the entrance examination. The apprenticeship is divided into six time periods, coinciding with the wage steps, for job training. An attached schedule defines the assignment of duties and work procedures which shall be provided in each of the time periods. The amount of time or units of work indicated in the schedule are sufficient to permit the apprentice to develop proficiency in the duty or work procedure, but should not be considered absolutely inflexible.

Additionally the amount of "on-the-job" training as defined by this schedule shall be dependent on the extent such duties are performed by Journeymen where the apprentice is headquartered. Duties not performed by Journeymen at the headquarters, and therefore not available in the training program, shall be noted in the training record. Progression through the apprenticeship or advancement to Journeyman shall not be deterred should there be deficiencies caused by such situations.

The schedule also specifies training periods in which the apprentice shall receive related academic or class training.

A. General Guidelines

1. It is intended that specified training shall be afforded the apprentice as early in each training period as is practicable.

2. Hours shown on the schedule do not include travel time to reach the place where training is to be given; however, the hour shown do provide for the necessary preparation of tools and equipment.

3. As a general practice, apprentices shall be trained by working with qualified Journeymen or top-step apprentices who are proficient in the work in progress.

4. Progressive work experience in appropriate phases of technician work will be provided throughout all of the periods of the apprenticeship in accordance with the attached schedule.

5. The work assignments in the period of training shall be those which will provide the apprentice basic knowledge of, and confidence in, the equipment and the procedures specified for that period within limits imposed by the availability of work.

6. Notices

(a) Apprentices scheduled to attend centralized training programs (classroom) shall be given at least 4 weeks notice of such schedules. Such notifications shall be made by the apprentices' immediate supervisors.

(b) If an apprentice does not maintain an acceptable on-the-job or academic performance level, notice shall be given as provided for in the Section D of the Master Apprenticeship Agreement.

B. Guidelines for Training Periods

1. 0 to 6 Months' Step

During this first period, the apprentice shall learn the operation and care of tools and equipment used by the Electrical Technician, and shall become familiar with related work.

The apprentice shall be required to become familiar with the many various standards, general orders and regulations applicable to technical work.

The apprentice shall experience the duties of an Electrical Technician as indicated for the 0 - 6 months' period on the attached schedule.

2. 7 - 12 Months' Step

The apprentice shall continue to perform the duties of the prior period and, in addition, shall experience the duties outlined in the 7 - 12 months' period on the attached schedule.

As early as practical in this training period, the apprentice shall be assigned to the Electronics Course at Emeryville for classroom instruction.

(a) A test will be given at the conclusion of the course. Should the apprentice fail to achieve a passing score, written notice of the deficient areas will be given.

(b) After failure, but no longer than one month following the date of the initial test, the apprentice shall be allowed to retake the test upon request. A maximum of three retests will be allowed, spaced no less than one month apart.

(c) Apprentices shall complete the course and pass the agreed-upon test not later than the end of the 12th month of training, regardless of the number of retests requested. Failure to meet this Standard of Achievement will be in accordance with the Master Apprenticeship Agreement.

3. 13 - 18 Months' Step

The apprentice shall continue to perform the duties specified for prior periods and, in addition, shall experience the duties outlined on the schedule for this period.

As early as practical in this training period, the apprentice shall be assigned to the Relay and Vectors Course at Emeryville for classroom instruction.

(a) A test will be given at the conclusion of the course and should the apprentice fail to achieve a passing score, written notice of the deficient areas will be given.

(b) Retesting opportunities shall be in accordance with the schedule outlined in Paragraph 2b of these guidelines.

4. 19 - 24 Months' Step

The apprentice shall continue to work as provided in the prior periods and, in addition, shall experience the duties outlined on the schedule for this period. The apprentice shall demonstrate proficiency in use of tools and test equipment on all types of protective relays.

As early as practical in this training period, and with consideration of the effect on work in progress, the apprentice shall be assigned to the Advanced Relay Course at Emeryville for classroom instruction on protective relay equipment.

(a) A test will be given at the conclusion of the course and should the apprentice fail to achieve a passing score, written notice of the deficient areas will be given.

(b) Retesting opportunities shall be in accordance with the schedule outlined in Paragraph 2b of these guidelines.

5. 25 - 30 Months' step

The apprentice shall continue to work as provided in the prior periods and, in addition, will learn the duties outlined on the attached schedule for the appropriate period. The apprentice shall gain increased proficiency in the use of tools and test equipment by hands-on experience.

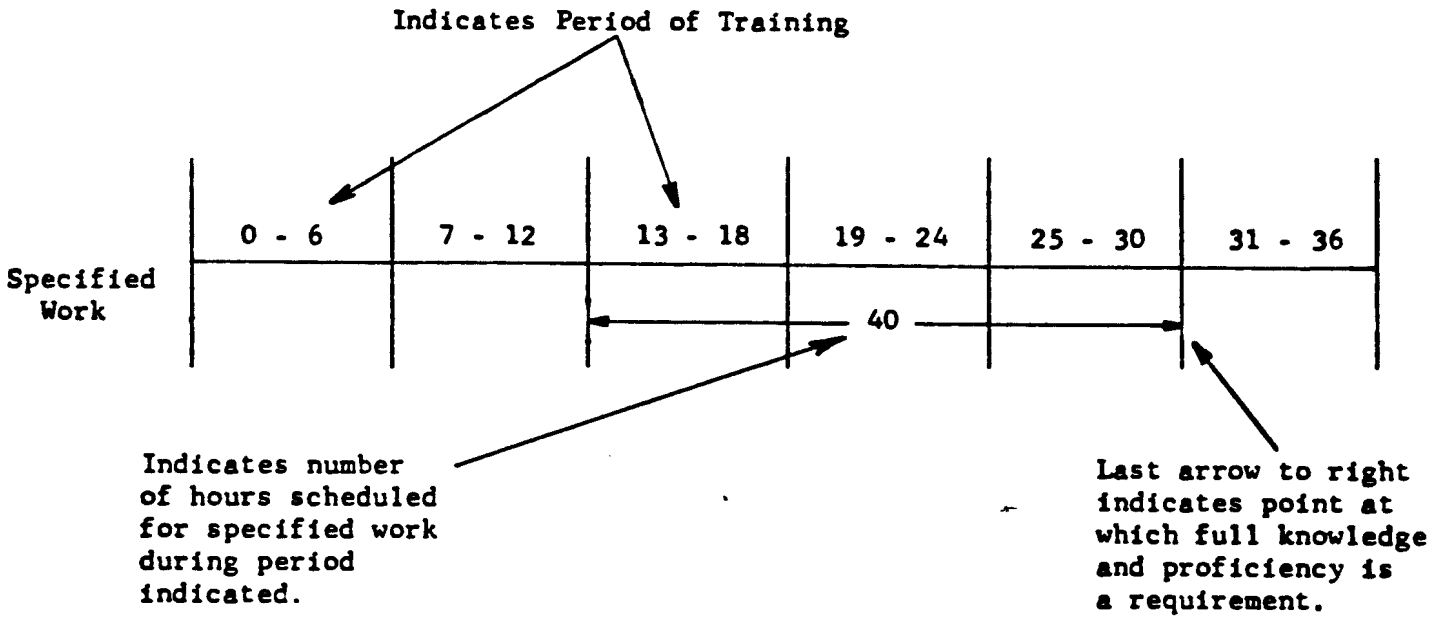
6. 31 - 36 Months' Step

The apprentice shall continue to work as provided in the prior periods and, in addition, will learn the duties outlined on the attached schedule for the appropriate period. The apprentice shall gain increased proficiency in the use of tools and test equipment by hands-on experience.

C. Records

1. It shall be the responsibility of each apprentice to maintain his or her own records in collaboration with the Test Supervisor to whom the apprentice is assigned. Upon completion, each periodic record shall be submitted to the Education Supervisor.

GUIDE ON USE OF THE SCHEDULE



SCHEDULE

ACADEMIC ASSIGNMENT MONTHS	0-6	7-12	13-18	19-24	25-30	31-36
ELECTRONICS		120 Hrs				
RELAY AND VECTORS			120 Hrs			
ADVANCED RELAY COURSE				120 Hrs		
"ON-THE-JOB" ASSIGNMENTS HOURS	960	840	840	840	840	960
1. Safety	8	8	8	8	8	8
2. Reports, Instruction Books and Standards	40	40	40	40	40	40
3. Overcurrent Relays	40	16	16	16	16	16
4. Potential and Current Transformers	48	32	32	32	32	32
5. Voltage Relays		48				
6. Directional Relays and Directional Checks			400			120
7. Low Voltage Switchgear Controls			400			40
8. Frequency Relays		48				
9. Auxiliary Relays	48	16	16	16	16	16
10. Reclosing Relays	40	24	24	24	24	24
11. Power Circuit Breakers	80		112	72	72	72
12. Automatic Schemes			400			120
13. Differential Relays & Load Checks	24	24	24	24	24	24
14. Metering	40	8	8	8	8	8
15. Distance Relays & Directional Checks			400			120
16. Power Transformers and Regulators	64		112	72	72	72
17. Solid State Relays			400			72
18. Relaying and Control Applications	80	112	112	112	112	160
19. Communications (Written)	16	16	16	16	16	16

STATION CONSTRUCTION DEPARTMENT

STANDARDS OF ACHIEVEMENT RECORD

FOR

"ON-THE-JOB" TRAINING SKILLS

NAME_____ S.S. No. _____

ASSIGNMENT

1. Bench test non-directional overcurrent relays
2. Bench test directional overcurrent relays
3. Bench test G.E. distance relays, (a) Type_____
   (b) Type_____
   (c) Type_____
4. Bench test West. distance relays, (a) Type_____
   (b) Type_____
   (c) Type_____
5. Bench test relays not included above
6. Load check total overcurrent relays
7. Load and direction check directional overcurrent relays
8. Direction check directional ground relays, (a) Potential polarized
   (b) Current polarized
9. Load and direction check G.E. distance relays, (a) Type_____
   (b) Type_____
   (c) Type_____
10. Load and direction check West. distance relays, (a) Type_____
    (b) Type_____
    (c) Type_____
11. Load check differential relays, (a) Overcurrent
    (b) PVD
    (c) Harmonic restraint
    (d) Percentage differential
    (e) Pilot Wire
12. PCB timing and pneumatic/hydraulic tests
13. PCB time travel tests
14. Current transformer saturation tests
15. Current transformer ratio tests
16. Set potential devices
17. Calibrate switchboard ammeters/voltmeters
18. Calibrate switchboard wattmeters/varmeters, (a) Single element
    (b) 2 or 2½ element
19. Ratio power transformers (TTR or voltmeter method)
20. Transformer protective devices
21. Transformer fault pressure relays
22. Station trip checks
23. Station automatics
24. 500 kv relays, (a) Installation tests
    (b) End-to-end checks
25. Carrier oscillograph records, (a) General Electric
    (b) Westinghouse
26. Transferred trip schemes
27. Supervisory schemes
28. Paperwork

APPRENTICE ELECTRICAL TECHNICIAN "ON-THE-JOB" TRAINING (HOURS)

NAME _____ S.S. No. _____ START DATE _____

ON-THE-JOB ASSIGNMENTS	0-6 MONTHS	7-12 MONTHS	13-18 MONTHS	19-24 MONTHS	25-30 MONTHS	31-36 MONTHS
1. SAFETY	8	8	8	8	8	8
2. REPORTS, INSTRUCTIONS AND STANDARDS	40	40	40	40	40	40
3. OVERCURRENT RELAYS	40	16	16	16	16	16
4. POTENTIAL AND CURRENT TRANSFORMERS	48	32	32	32	32	32
5. VOLTAGE RELAYS	48					
6. DIRECTIONAL RELAYS AND DIRECTIONAL CHECKS	400					120
7. LOW VOLTAGE SWITCH GEAR CONTROLS	400					40
8. FREQUENCY RELAYS	48					
9. AUXILIARY RELAYS	48	16	16	16	16	16
10. RECLOSING RELAYS	40	24	24	24	24	24

Mark out one square for each hour of satisfactory on-the-job training.

ON-THE-JOB ASSIGNMENTS	0-6 MONTHS	7-12 MONTHS	13-18 MONTHS	19-24 MONTHS	25-30 MONTHS	31-36 MONTHS
11. POWER CIRCUIT BREAKERS	80	112		72	72	72
12. AUTOMATIC SCHEMES	400					120
13. DIFFERENTIAL RELAYS AND LOAD CHECKS	24	24	24	24	24	24
14. METERING	40	8	8	8	8	8
15. DISTANCE RELAYS & DIRECTIONAL CHECKS	400					120
16. POWER TRANSFORMERS AND REGULATORS	64	112		72	72	72
17. SOLID STATE RELAYS	400					72
18. RELAYING AND CONTROL APPLICATIONS	80	112	112	112	112	160
19. COMMUNICATIONS	16	16	16	16	16	16

Mark out one square for each hour of satisfactory on-the-job training.

APPRENTICE ELECTRICAL TECHNICIAN MONTHLY REVIEW RECORD

NAME _____ S.S. No. _____ START DATE _____

).	COMMENTS	INITIALS		MO.	COMMENTS	INITIAI	
1				19			
2				20			
3				21			
4				22			
5				23			
6				24			
7				25			
8				26			
9				27			
0				28			
1				29			
2				30			
3				31			
4				32			
5				33			
6				34			
7				35			
8				36			

REMARKS:

n the line corresponding to the assignment on the other side of this form, the hould insert a number (1 or 2) according to the code shown below. This should then be nitialed. When the appropriate number is 3, both Supervisor and Apprentice should sign n the right, and the date should be inserted.

(1) Has a working knowledge of this assignment, but needs much more experience.
(2) Has a good knowledge of this assignment, but needs a little more experience to become proficient.
(3) I consider this man to be proficient in this assignment.

		Supervisor	Apprentice	Date Qualified
1.				
2.				
3a.				
3b.				
3c.				
4a.				
4b.				
4c.				
5.				
6.				
7.				
8a.				
8b.				
9a.				
9b.				
9c.				
10a.				
10b.				
10c.				
11a.				
11b.				
11c.				
11d.				
11e.				
12.				
13.				
14.				
15.				
16.				
17.				
18a.				
18b.				
19.				
20.				
21.				
22.				
23.				
24a.				
24b.				
25a.				
25b.				
26.				
27.				
28.				

GENERAL CONSTRUCTION STATION DEPARTMENT
GUIDELINES FOR THE
APPRENTICE INSTRUMENT TECHNICIAN TRAINING PROGRAM

I. Objective of the Apprentice Instrument Technician Training Program

The need for trained and fully qualified employees to accomplish the duties of the Journeyman Instrument Technician in a manner consistent with Company's Standards of competence, Safety and Performance has resulted in the establishment of this program which combines extensive on-the-job and related academic training. The systematic acquisition of knowledge and skill provides the employee in training the means to attain self-confidence, assuredness and satisfaction in his or her work. As a result company work is performed efficiently, correctly, and safely.

II. Training

Admittance to apprenticeship is gained by demonstrated technical ability and a minimum score of 70% on the entrance examination. The apprenticeship is divided into six time periods, coinciding with the wage steps, for job training and an attached schedule defines the assignment of duties and work procedures which shall be provided in each of the time periods. The amount of time or units of work indicated in the schedule are sufficient to permit the apprentice to develop proficiency in the duty or work procedure, but should not be considered absolutely inflexible.

Additionally the amount of "on-the-job" training at a specific job headquarters as defined by this schedule shall be dependent on the extent such duties performed by Journeymen where the apprentice is headquartered. Duties not performed by Journeymen at the headquarters, and therefore not available in the training program, shall be noted in the training record. Progression through the apprenticeship or advancement to Journeyman shall not be deterred should there be deficiencies caused by such situations.

The schedule also specifies training periods in which the apprentice shall receive related academic or class training.

A. General Guidelines

1. It is intended that assignment of specified training shall be afforded the apprentice as early in each training period as is practicable.

2. Hours shown on the schedule do not include travel time to reach the place where training is to be given; however, the hour shown do provide the necessary preparation of tools and equipment.

3. As a general practice, apprentices shall be trained by working with qualified Journeymen or a top-step apprentice who is proficient in the work in progress.

4. Progressive work experience in appropriate phases of technician work will be provided throughout all of the periods of the apprenticeship in accordance with the attached schedule.

5. The work assignments in the period of training shall be those which will provide the apprentice basic knowledge of, and confidence in, the equipment and the procedures specified for that period within limits imposed by the availability of work. Assignments shall become progressively more complex as the apprentice gains knowledge and capability.

6. Notices

(a) The apprentice scheduled to attend centralized training programs (classroom) shall be given at least 4 weeks notice of such schedules. Such notifications shall be made by the apprentices' immediate supervisors.

(b) If an apprentice does not maintain an acceptable on-the-job or academic performance level, notice shall be given as provided for in the Section D of the Master Apprenticeship Agreement.

B. Guidelines for Training Periods

1. 0 to 6 Months' Step

During this first period, the apprentice shall learn the operation and care of tools and equipment used by the Instrument Technician, and shall become familiar with related work.

The apprentice shall be required to become familiar with the many various standards, general orders and regulations applicable to technical work.

The apprentice shall experience the duties of an Instrument Technician as indicated for the 0 - 6 months' period on the attached schedule.

During this period the trainee shall learn on his or her own time the following academic courses: I-2, I-3, I-4, I-5, I-6 and I-7 as indicated for the 0 - 6 months' period on the attached schedule and as shown on the attached Course Map.

(a) A test will be given at the conclusion of each course. Should the apprentice fail to achieve a passing score, written notice of the deficient areas will be given.

(b) After failure, but no sooner than one month following the date of the initial test, the apprentice shall be allowed to retake the test upon request. A maximum of three retests will be allowed, spaced no less than one month apart.

(c) The apprentice shall complete the course and pass the agreed-upon tests not later than the end of the 6th month of training, regardless of the number of retests requested. Failure to meet this Standard of Achievement will be in accordance with the Master Apprenticeship Agreement.

2. 7 - 12 Months' Step

The apprentice shall continue to perform the duties of the prior period and, in addition, shall experience the duties outlined in the 7 - 12 months' period on the attached schedule.

During this period the trainee shall learn on his or her own time the following academic courses: I-8, I-9, I-10, I-11 and I-12 as indicated for the 7 - 12 months' period on the attached schedule and as shown on the attached Course Map.

(a) A test will be given at the conclusion of each course and should the apprentice fail to achieve a passing score, written notice of the deficient areas will be given.

(b) Retesting opportunities shall be in accordance with the schedule outlined in Paragraph 1b of these guidelines.

3. 13 - 18 Months' Step

The apprentice shall continue to perform the duties specified for prior periods and, in addition, shall experience the duties outlined on the schedule for this period.

As early as practical in this training period, the apprentice shall be assigned to the Instrumentation Lab. School and Basic Electronic School at Emeryville for classroom instruction.

(a) A test will be given at the conclusion of each course and should the apprentice fail to achieve a passing score, written notice of the deficient areas will be given.

(b) Retesting opportunities shall be in accordance with the schedule outlined in Paragraph 1b of these guidelines.

4. 19 - 24 Months' Step

The apprentice shall continue to work as provided in the prior periods and, in addition, shall experience the duties outlined on the schedule for this period. The apprentice shall demonstrate proficiency in use of tools and test equipment on all types of instrumentation equipment.

During this period the trainee shall learn on his or her own time the following academic courses: I-13, I-14, I-15, I-16 and I-17 as indicated for this period on the attached schedule and as shown on the attached Course Map.

(a) A test will be given at the conclusion of each course and should the apprentice fail to achieve a passing score, written notice of the deficient areas will be given.

(b) Retesting opportunities shall be in accordance with the schedule outlined in Paragraph 1b of these guidelines.

5. 25 - 30 Months' Step

The apprentice shall continue to work as provided in the prior periods and, in addition, will learn the duties outlined on the attached schedule for the appropriate period. The apprentice shall gain increased proficiency in the use of tools and test equipment by hands-on experience.

During this period the trainee shall learn on his or her own time the following academic courses: I-18 and I-19 as indicated for this period on the attached schedule and as shown on the attached Course Map.

(a) A test will be given at the conclusion of each course and should the apprentice fail to achieve a passing score, written notice of the deficient areas will be given.

(b) Retesting opportunities shall be in accordance with the schedule outlined in Paragraph 1b of these guidelines.

6. 31 - 36 Months' Step

The apprentice shall continue to work as provided in the prior periods and, in addition, will learn the duties outlined on the attached schedule for the appropriate period. The apprentice shall gain increased proficiency in the use of tools and test equipment by hands-on experience.

During this period the trainee shall learn on his or her own time the following academic course: I-20 as indicated for this period on the attached schedule and as shown on the attached Course Map.

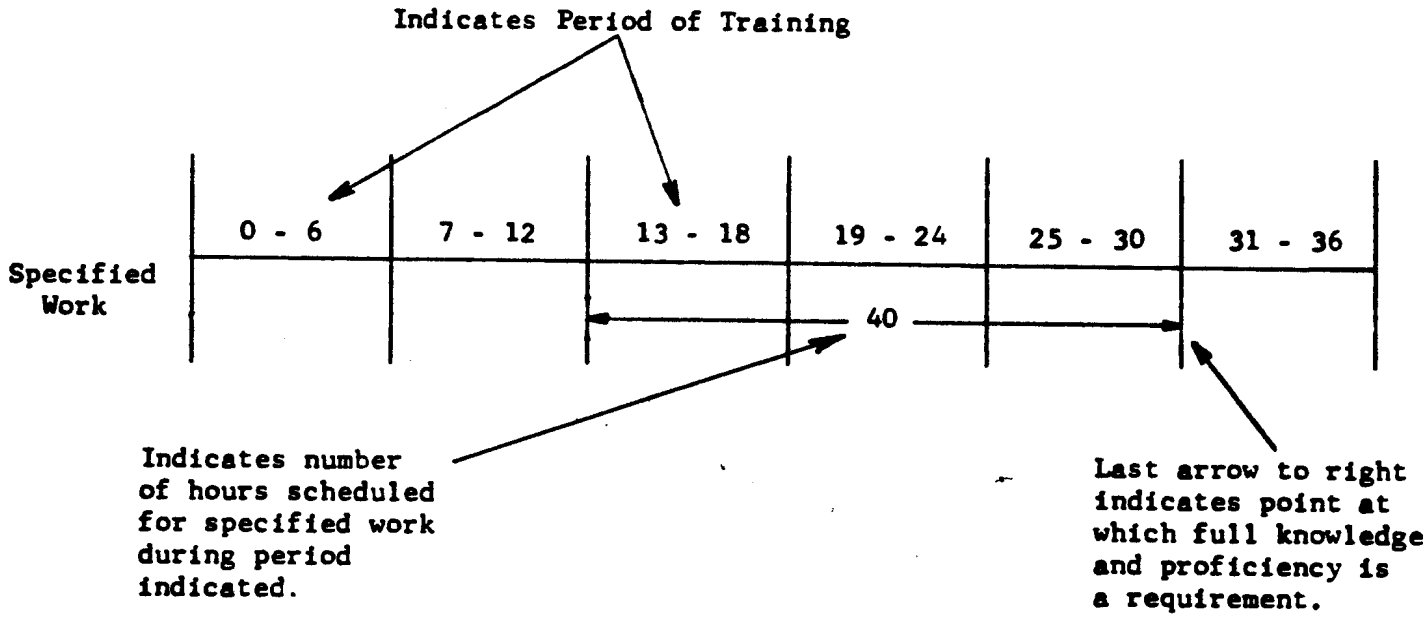
(a) A test will be given at the conclusion of this course and should the apprentice fail to achieve a passing score, written notice of the deficient areas will be given.

(b) Retesting opportunities shall be in accordance with the schedule outlined in Paragraph 1b of these guidelines.

C. Records

1. It shall be the responsibility of each apprentice to maintain his or her own records in collaboration with the Instrument Supervisor to whom the apprentice is assigned. Upon completion, each periodic record shall be submitted to the Education Supervisor.

GUIDE ON USE OF THE SCHEDULE



SCHEDULE

ACADEMIC ASSIGNMENT MONTHS (SEE COURSE MAP)	0-6	7-12	13-18	19-24	25-30	31-36
HOME STUDY COURSES: I-2, 3, 4, 5, 6 and 7	120					
HOME STUDY COURSES: I-8, 9, 10, 11 and 12		126				
INSTRUMENTATION LAB. SCHOOL - EMERYVILLE 4I-1			120			
BASIC ELECTRONIC SCHOOL - EMERYVILLE			120			
HOME STUDY COURSES: I-13, 14, 15, 16 and 17				125		
HOME STUDY COURSES: I-18 and 19					132	
HOME STUDY COURSE: I-20						56
"ON-THE-JOB" ASSIGNMENTS HOURS	331	486	645	745	607	566
1. MATERIAL CONTROL - RECEIVE/INSPECTION	←	60 →				
2. BENCH TESTING PNEUMATIC INDICATORS	←	60	→			
3. BENCH TESTING PNEUMATIC RECORDERS	←	60	→			
4. BENCH TESTING PNEUMATIC TRANSMITTERS	←		100	→		
5. BENCH TESTING PNEUMATIC CONTROLLERS	←		100	→		
6. BENCH TESTING PNEUMATIC SWITCHES	←	60	→			
7. BENCH TESTING PNEUMATIC VALVES/ POSITIONERS	←		100	→		
1. BENCH TESTING ELECTRONIC INDICATORS				←	60	→
. BENCH TESTING ELECTRONIC RECORDERS				←	60	→
. BENCH TESTING ELECTRONIC TRANSMITTERS				←	120	→
. BENCH TESTING ELECTRONIC CONTROLLERS				←	120	→
. BENCH TESTING ELECTRONIC SWITCHES					←	60 →
. BENCH TESTING ELECTRONIC POWER SUPPLIES					←	40 →
. BENCH TESTING ELECTRONIC MODIFIERS					←	80 →
. BENCH TESTING TEMPERATURE SENSORS RTD's				←	80	→

SCHEDULE

"ON-THE-JOB" ASSIGNMENTS MONTHS	0-6	7-12	13-18	19-24	25-30	31-36
"ON-THE-JOB" ASSIGNMENTS HOURS	331	486	645	745	607	566
16. BENCH TESTING TEMPERATURE SENSORS THERMOCOUPLES				←	80	→
17. INSTALLATION LAYOUT	←	40	→			
18. INSTALLATION COPPER TUBING	←		80	→		
19. INSTALLATION STEEL TUBING	←		80	→		
20. INSTALLATION INSTR./TUBING SUPPORT	←	60	→			
21. INSTALLATION PANEL	←	40	→			
22. INSTALLATION LOCAL INSTRUMENT		←	60	→		
23. INSTALLATION INSTRUMENT WIRING		←	60	→		
24. INSTALLATION BRAZING		←	40	→		
25. INSTALLATION TOOLS	←		80	→		
26. ADMINISTRATIVE SCALING CALCULATIONS			←		80	→
27. ADMINISTRATIVE WRITING LOOP TESTS			←		120	→
28. TEST EQUIPMENT MECHANICAL		←	120	→		
29. TEST EQUIPMENT ELECTRICAL			←	80	→	
30. TEST EQUIPMENT ELECTRONIC			←		160	→
31. ELECTRONIC REPAIR SKILLS - SOLDERING			←		40	→
32. ELECTRONIC REPAIR SKILLS - WIRING			←		40	→
33. ELECTRONIC REPAIR SKILLS - TROUBLESHOOTING			←		120	→
34. FIELD TESTING - DIGITAL LOOP TEST			←		160	→
35. FIELD TESTING - ANALOG LOOP TEST		←		160		→

SCHEDULE

"ON-THE-JOB" ASSIGNMENTS MONTHS	0-6	7-12	13-18	19-24	25-30	31-36
"ON-THE-JOB" ASSIGNMENTS HOURS	331	486	645	745	607	566
36. FIELD TESTING - ELECTRONIC PACKAGES				←	160	→
37. FIELD TESTING - COMPUTER TESTING				←	120	→
38. FIELD TESTING - DYNAMIC TUNING			←		120	→
39. FIELD TESTING - SINGLE INSTR. CALIB.	←	80	→			
40. FIELD TESTING - TUBING HYDRO TEST	←	40 →				


I-20 DIGITAL PRINCIPLES AND APPLICATIONS
I-18 ELECTRONIC INSTRUMENTATION & MEASUREMENT TECHNIQUES
I-19 ELECTRONIC CIRCUITS FOR TECHNICIANS
I-16 OSCILLATORS & MULTIVIBRATORS
I-17 LOGIC CIRCUITS
I-13 SEMI CONDUCTORS
I-14 POWER SUPPLIES
I-15 AMPLIFIERS
BASIC ELECTRONIC SCHOOL EMERYVILLE - 3 WEEKS
INSTRUMENTATION LAB, SCHOOL EMERYVILLE - 3 WEEKS
I-8 LEVEL MEASUREMENTS
I-9 TEMPERATURE MEASUREMENTS
I-10 FINAL CONTROL ELEMENTS
I-11 SAFETY CALIBRATIONS & TEST PROCEDURES
I-12 STEAM GENERATION
I-2 INTRO TO PROCESS CONTROL
I-3 FOUNDATION OF MEASUREMENT INSTRUMENTATION
I-4 PRESSURE MEASUREMENT
I-5 FORCE WEIGHT & MOTION MEASUREMENTS
I-6 FLOW MEASUREMENTS PRINC. #1
I-7 FLOW MEASUREMENTS PRINC. #2

Course Map

APPRENTICE INSTRUMENT TECHNICIAN
TRAINING SCHOOL

4245 HOLLIS STREET, EMERYVILLE

1. PURPOSE

The training course will consist of lectures, the use of video tapes, bench top calibration and demonstrations, and the use of the Process Control Simulator. This will provide practical applications and reinforce the control theory presented to the apprentice during the process control portions of the Apprentice Instrument Technician Training Program.

2. SCOPE

The course is designed to give the student a general background in instrument schematics, piping and instrument diagrams, instrument installation details and procedures, process control instruments and their applications to control systems, control system loop testing and dynamic tuning of process control loops.

3. COURSE OUTLINE

A. First day

1. Indoctrination and orientation.
2. Reasons for and development of instruments (slides).
3. Introduction to instrument schematics and diagrams.

B. Second day

1. Instrument installation details, standards and specifications.
2. Instrument selection and field installation.
3. Selection of material and fittings.
4. Process tubing routing and installation.
5. Tubing bending procedures.
6. Soldering procedures.
7. Review material covered test.

C. Third day

1. Need for testing.
2. Basic instruments and measurement devices.
3. Use of dead weight testers and calibrators.

D. Fourth day

1. Pneumatic Force Balance Transmitters (film).
2. Calibration of force balance transmitters (lab).
3. Use of instrument maintenance history cards.

E. Fifth day

1. Electronic Force Balance Transmitters (film).
2. Calibration of force balance transmitters (lab).
3. Liquid level devices (slides).
4. Differential pressure devices.

F. Sixth day

1. Flow calculations and orifice sizing.
2. Calibration of flow instruments (lab).
3. Calibration of level instruments (lab).
4. Review material covered.
5. Test.

G. Seventh day

1. Resistance temperature detectors; uses, selection and calibration (film).
2. Thermocouples; types, selection and calibration (film).
3. Calibration of temperature devices.

H. Eighth day

1. Fundamentals of Control Valves (slides).
2. Control valve and spring rate calculations.
3. Valve positioners and transmitters.
4. Control valve calibration (lab).

I. Ninth day

1. Fundamentals of Automatic Control (film).
2. Control system scaling calculations.
3. Level control proportional only (lab).

J. Tenth day

1. Level control proportional and intergal, pneumatic and electronic (lab).
2. Pressure control proportional and intergal, pneumatic and electronic (lab).
3. Temperature control, pneumatic and electronic (lab).
4. Review material covered and test.

K. Eleventh day

1. Principals of Feedforward Controls (film).
2. Control system development and layout.
3. Loop test writing, procedures and documentation.

L. Twelfth day

1. Loop test writing, two element control systems, alarms and trips (pneumatic).
2. Control loop static testing, pneumatic (lab).
3. Control loop dynamic testing, pneumatic (lab).

M. Thirteenth day

1. Loop test writing (electronic).
2. Control loop static testing, electronic (lab).
3. Control loop dynamic testing, electronic (lab).

N. Fourteenth day

1. Three element control systems development and layout.
2. Three element control system testing (lab).
3. Lead-lag and anticipation control dynamic testing (lab).

O. Fifteenth day

1. Continue control system dynamic testing (lab).
2. Review material covered and test.

4. PROCESS CONTROL SIMULATOR

The training simulator will provide the following functions in pneumatic and electronic modes using direct process, manual/automatic and remote set point control:

1. Level, pressure, flow and temperature control loops.
2. Two element control loops.
3. Three element control loops.
4. Lead-lag control.
5. Feed forward control.

The simulator will provide the apprentice with "hands on" training in instrumentation tubing, wiring, static instrument calibration, dynamic control loop tuning and control system trouble-shooting and problem solving.

APPRENTICE INSTRUMENT TECHNICIAN "ON-THE-JOB" TRAINING (HOURS)

NAME _____ S.S. No. _____ START DATE _____

	"ON-THE-JOB" ASSIGNMENTS	0-6 MONTHS	7-12 MONTHS	13-18 MONTHS	19-24 MONTHS	25-30 MONTHS	31-36 MONTHS
1.	MATERIAL CONTROL-RECEIVE/INSPECTION	60					
2.	BENCH TESTING PNEUMATIC INDICATORS		60				
3.	BENCH TESTING PNEUMATIC RECORDERS		60				
4.	BENCH TESTING PNEUMATIC TRANSMITTERS			100			
5.	BENCH TESTING PNEUMATIC CONTROLLERS			100			
6.	BENCH TESTING PNEUMATIC SWITCHES		60				
7.	BENCH TESTING PNEUMATIC VALVES/POSITIONERS			100			
8.	BENCH TESTING ELECTRONIC INDICATORS				60		
9.	BENCH TESTING ELECTRONIC RECORDERS				60		
10.	BENCH TESTING ELECTRONIC TRANSMITTERS				120		
11.	BENCH TESTING ELECTRONIC CONTROLLERS				120		
12.	BENCH TESTING ELECTRONIC SWITCHES					60	
13.	BENCH TESTING ELECTRONIC POWER SUPPLIES					40	

Mark out one square for each hour of satisfactory on-the-job training.

APPRENTICE INSTRUMENT TECHNICIAN "ON-THE-JOB" TRAINING (HOURS)

NAME _____ S.S. No. _____ START DATE _____

"ON-THE-JOB" ASSIGNMENTS	0-6 MONTHS	7-12 MONTHS	13-18 MONTHS	19-24 MONTHS	25-30 MONTHS	31-36 MONTHS
.4. BENCH TESTING ELECTRONIC MODIFIERS					80	
.5. BENCH TESTING TEMPERATURE SENSORS RTD's				80		
.6. BENCH TESTING TEMPERATURE SENSORS THERMOCOUPLES				80		
7. INSTALLATION LAYOUT	40					
8. INSTALLATION COPPER TUBING		80				
9. INSTALLATION STEEL TUBING		80				
0. INSTALLATION INSTR./TUBING SUPPORT		60				
1. INSTALLATION PANEL	40					
2. INSTALLATION LOCAL INSTRUMENT		60				
3. INSTALLATION INSTRUMENT WIRING		60				
4. INSTALLATION BRAZING		40				
5. INSTALLATION TOOLS		80				
6. ADMINISTRATIVE SCALING CALCULATIONS			80			
7. ADMINISTRATIVE WRITING LOOP TESTS			120			

Mark out one square for each hour of satisfactory on-the-job training.

APPRENTICE INSTRUMENT TECHNICIAN "ON-THE-JOB" TRAINING (HOURS)

NAME _____ S.S. No. _____ START DATE _____

"ON-THE-JOB" ASSIGNMENTS	0-6 MONTHS	7-12 MONTHS	13-18 MONTHS	19-24 MONTHS	25-30 MONTHS	31-36 MONTHS
28. TEST EQUIPMENT MECHANICAL		120				
29. TEST EQUIPMENT ELECTRICAL			80			
30. TEST EQUIPMENT ELECTRONIC				160		
31. ELECTRONIC REPAIR SKILLS - SOLDERING				40		
32. ELECTRONIC REPAIR SKILLS - WIRING				40		
33. ELECTRONIC REPAIR SKILLS - TROUBLESHOOTING				120		
34. FIELD TESTING - DIGITAL LOOP TEST			160			
35. FIELD TESTING - ANALOG LOOP TEST		160				
36. FIELD TESTING - ELECTRONIC PACKAGES				160		
37. FIELD TESTING - COMPUTER TESTING				120		
38. FIELD TESTING - DYNAMIC TUNING			120			
39. FIELD TESTING - SINGLE INSTR. CALIB.	80					
40. FIELD TESTING - TUBING HYDRO TEST	40					

APPRENTICE INSTRUMENT TECHNICIAN MONTHLY REVIEW RECORD

NAME _____ S.S. No. _____ START DATE _____

O.	COMMENTS	INITIALS		MO.	COMMENTS	INITIALS	
1				19			
2				20			
3				21			
4				22			
5				23			
6				24			
7				25			
8				26			
9				27			
10				28			
11				29			
12				30			
13				31			
14				32			
15				33			
16				34			
17				35			
18				36			

REMARKS:

On the line corresponding to the assignment on the other side of this form, the should insert a number (1 or 2) according to the code shown below. This should then be initialed. When the appropriate number is 3, both Supervisor and Apprentice should sign on the right, and the date should be inserted.

(1) Has a working knowledge of this assignment, but needs much more experience.
(2) Has a good knowledge of this assignment, but needs a little more experience to become proficient.
(3) I consider this man to be proficient in this assignment.

	Supervisor	Apprentice	Date Qualified
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