

SOUTHERN CALIFORNIA SURVEYORS
JOINT APPRENTICESHIP COMMITTEE
A JOINT LABOR-MANAGEMENT TRAINING PROGRAM



Dear Applicant:

In regards to your interest in the Apprenticeship Program, enclosed is a copy of our "Selection Procedures for Applicants" and other information relating to the Program.

The Surveyors Apprenticeship Program is sponsored by the Operating Engineers, Local Union No. 12, and the Southern California Association of Civil Engineers and Land Surveyors. Apprentices work under a collective bargaining agreement which provides for fair wages, pension, and health care benefits, paid holidays and vacations, and good working conditions which provide the apprentice with reasonably continuous employment.

Chainman program apprentices receive up to 6,000 hours of on the job training while employed by engineering and surveying firms or general contractors on job sites throughout Southern California. They are required to attend related instruction classes, generally two nights a week and some Saturdays, after beginning work.

Also enclosed is a "Study Guide for Qualification Test" which will help you in studying for the required algebra and geometry test. When your application is received, you will be scheduled for testing on the next available test date. (Refer to enclosed "Instructions for Application".) After you have completed and passed the qualifications test, you will receive more information about employment. You should anticipate a waiting period before going to work.

Thank you for your interest.

Sincerely,

Raymond Diaz
Administrator

17-03



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SELECTION PROCEDURES

I. INTRODUCTION:

1. Information regarding opportunities to enter the program is disseminated in accordance with the California Plan for Equal opportunity.
2. Application for Apprenticeship may be requested from the Joint Apprenticeship Committee office by phone, by mail or in person.
3. This program is open to all qualified applicants without regard to race, creed, color, national origin or sex.

II. QUALIFICATIONS:

1. Applicant must be at least eighteen (18) years of age. No maximum age.
2. Applicant must be in good health and physically able to perform all phases of the work. **Applicant may be subject to drug testing prior to being eligible for employment.**
3. Applicant must be able to read, write, and speak the English language, in order to comprehend instructions on the job and in related training classes, and to insure personal and co-worker safety on the job.
4. Applicant must complete an application form containing a complete schooling record and previous work experience, and submit it to the Joint Apprenticeship Committee's office.
5. Applicant must show proof of High School graduation from an accredited secondary school in the United States, or a certificate showing satisfactory scores in the General Education Development (G.E.D.) test, prior to taking the qualifications test.

II. QUALIFICATIONS: (cont.)

6. Applicant must produce documentation of being eligible for employment in the United States, prior to taking the qualifications test.
7. Applicant must have an educational background in algebra and geometry, sufficient to obtain a satisfactory score (75% or higher) on the Surveyors Joint Apprenticeship Qualifications Test.
8. Chief of Party Apprenticeship applicants must have completed the Southern California Surveyors Joint Apprenticeship Committee's Chainman Apprenticeship Program or the equivalent.

III. PROCEDURES:

1. Applicants will be notified by mail of the date, time and location of qualifications test.
2. Applicants will be notified in writing of acceptance or rejection and given reasons if rejected.

Having met the above qualifications, applicants will receive a letter of notification which may be used to seek employment in the manner prescribed by the Master Agreement between the Employer Association and the I.U.O.E., Local No. 12, which will be explained in detail at the orientation to all applicants passing the qualifications test.

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**TO: Qualified Applicants with Prior
Field Surveying Experience**

The Joint Apprenticeship Committee has authorized "Pre-evaluation" of applicants with prior field experience. With **SUFFICIENT DOCUMENTATION** of your experience, you may be initially dispatched at a rate higher than Apprentice A.

In order for you to be considered for a higher initial dispatch rate, you must supply the JAC office with letters of documentation from previous employers, or other similar documentation of employment, as soon as possible. These letters should be on company letterhead, signed by a company representative, and should detail the types of survey work performed, your job duties and the dates worked, including the approximate number of hours worked.

The JAC administrative staff will evaluate the documentation of your experience, and you will be placed in a classification for your first dispatch. After you have gone to work for an approved employer as an apprentice, you will be interviewed by a Labor/Management Subcommittee, your pre-evaluation will be reviewed, and you will be indentured into the Training Program at the appropriate apprentice classification for your previous field experience.

Attached is a copy of the JAC's current Chainman Work Processes and Wage Rates.

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CHAINMAN APPRENTICESHIP PROGRAM ON THE JOB TRAINING WORK PROCESSES

Apprentice A - \$19.23 per hour

0 to 500 Hours

Introduction to:

TOOL CARE AND SAFETY

1. Use and care of hand tools
2. Care of survey vehicle and equipment
3. Care and handling of survey instruments
 - a. Removing from and replacing in the box
 - b. Carrying equipment mounted on a staking staff or tripod
 - c. Setting up instruments
- *4. Safety practices
 - a. First Aid and First Aid Kits
 - b. Use of sharp tools
 - c. Precautions for jobsite hazards
5. Understanding survey terminology and use of hand signals
6. Procedures for stake driving and marking and placing of guard stakes of witness lath

Apprentice B - \$22.43 per hour

500 to 1,000 Hours

Review of skills 1-6, introduction to:

FIELD STAKING PROCEDURE

7. Use of stationing systems
- *8. Methods of note keeping and sketching
9. Setting of bench marks and turning points
10. Setting of survey monuments
11. Rules of good public relations and relations between colleagues

Apprentice C - \$25.64 per hour

1,000 to 2,000 Hours

Skilled in 1-6, review of 7-11, introduction to:

SURVEY INSTRUMENT OPERATION

12. Operation of a level and level note keeping
- *13. Use of GPS/RTK
14. Use of scanners

Apprentice D - \$28.84 per hour

2,000 to 3,000 Hours

Skilled in 1-11, review of 12-14, introduction to:

ADVANCED FIELD METHODS

15. Methods for peg adjustment of a level
16. Methods of plan reading
17. Methods of preparing grades and cut sheets
18. Methods of referencing survey control/ties
19. Topographic survey procedures

Apprentice E - \$31.59 per hour

3,000 to 4,000 Hours

Skilled in 1-19, introduction to:

FIELD CALCULATION

20. Methods of basic field calculation
21. Methods and application of staking curves horizontal and vertical
22. Project control calculation and traverse adjustment

Apprentice F - \$34.34 per hour

4,000 to 5,000 Hours

Skilled in 1-22, introduction to:

QUALITY ASSURANCE

- *23. Staking procedures for various projects
- *24. Preparation of stakes and materials for jobsite layout
25. Identification of safety hazards
26. Review of staking information for accuracy
- *27. Electronic transfer and filing of job information

Apprentice G - \$36.62 per hour

5,000 to 6,000 Hours

Skilled in 1-27, introduction to:

PROJECT PLANNING

28. Identification of required jobsite accuracy
29. Techniques of analyzing jobs for efficient procedures
30. Basic criteria and procedures for property surveys

Chainman - \$45.78 per hour

6,000 Hours

*Skilled in 1-30. Complete Program as a journeyman chainman

* These topics include "green curriculum".

Wage rates effective 10-01-17 through 09-30-18

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CHAINMAN APPRENTICESHIP PROGRAM
COURSE OUTLINE SUMMARY

Related instruction classes open to indentured apprentices only.

Classes may be held two nights a week, and some scheduled Saturdays, or they may be held on Saturdays only.

SEMESTER #1 - SURVEYING EQUIPMENT & TECHNIQUES

Overview of the Survey Industry
Basic Field Operations and Setting Survey Points
Basic Measurement Techniques in Surveying
Introduction to Angle Measuring and Field Instruments
Introduction to Leveling
Introduction to Topographic Surveys
First Aid
Computer Literacy

SEMESTER #2 - SURVEYING PROCEDURES

Apprentice Responsibilities and Public Relations
Field Notes
Identification of Monuments
Review of Metric and English Measuring Systems
Linear Measurements
Introduction to Station and Location Systems
Review of Angles, Bearings and Instruments
Leveling Methods
Global Positioning System (GPS)
Plan Reading and Grade Sheets
Introduction to Construction Surveys

SEMESTER #3 - SURVEYING PRACTICES

Review of Measuring Systems
Review of Angles, Bearings and Location Systems
Trigonometry
Slope Staking
Electronic Distance Measuring and Recording
GPS Basics and Field Procedures

9480 Utica Avenue, Suite 604 • Rancho Cucamonga, California 91730
(909) 243-7973 • (800) 863-9539 • FAX (909) 243-7979
office@scsurveyjac.org • www.scsurveyjac.org



SEMESTER #4 – SURVEYING COMPUTATIONS

Coordinate Geometry
GPS Coordinate Systems
Oblique Triangle Solutions
Horizontal and Vertical Curves
Traverse Surveys

SEMESTER #5 – SURVEYING PROJECTS

Field Note Preparation
U.S. Public Land Surveys
Property Surveys
Subdivision Surveys
Topographic and Photogrammetric Surveys
Staking Procedures for Various Projects
Heavy Construction Surveys
ALTA Surveys
Total Stations
Public Relations
Scope of Profession
Introduction of Chief of Party Apprenticeship Program

Apprentices will be tested on their computer skills. Computer Literacy classes will be scheduled on an as needed basis. At the beginning of a Fall Semester, apprentices will be assigned to five classes on Labor Relations in the Survey Industry in Southern California. In addition, apprentices must attend at least five Union Meetings during their apprenticeship.

NOTE: Attendance at assigned related instruction classes is mandatory for apprentices and is a condition of employment.

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SCHOLARSHIP LOAN AGREEMENT

The Southern California Surveyors Joint Apprenticeship Committee and Trust (JAC & JAT) provides training to apprentices in the Civil Engineering and Land Surveying Industry in the occupations of Chainman and Chief of Party. This training, provided at no cost to the apprentice during training, is paid for by the Employers and Workmen in the industry. The current average cost to the training program for the development of the curriculum, and the administration of the Program is in excess of \$2,000 per apprentice. The Employers and the Workmen in the industry recognize the need to continuously train persons to perpetuate the available work force for the Employers who are signed to the Survey Collective Bargaining Agreement.

The Employers, the Union representing the Workmen, and the JAC & JAT are concerned that persons may receive training and then not be available to the industry upon completion of their training, or not return to the JAC & JAT in employer contributions the cost of training future workmen. In order to ensure the availability of a trained workforce for the industry, a Scholarship Loan has been developed.

An apprentice, upon being selected for training, agrees to repay to the JAC & JAT the cost of the training received either by working in the industry for a contributing employer for a specified period of time after completing training, or by repaying the dollar amount (currently \$2,000 per year) for each year of training. Each apprentice will be required to sign the Scholarship Loan Agreement for each year of training. This Agreement must be signed prior to the apprentices being indentured into the Chainman and into the Chief of Party Apprenticeship Program.

88-01



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OCCUPATION OF CHAINMAN

NATURE OF WORK:

Performs any of the following duties to assist on a surveying crew. Holds the leveling rod or ray out rod at designated points to assist in level runs to determine elevations or staking for construction, mapping and other surveys. Chainman will mark the lath with the proper station and cut or fill as needed. Chainman will clear line of sight as needed to expedite the work of the survey crew.

In addition the chainman will direct the work of subordinate members of the survey crew. Chainman performs other duties relating to survey work as directed by the Chief of Party.

For more information go to: <http://online.onetcenter.org/link/summary/17-3031.01>

TOOLS USED:

Levels, total stations, Global Positioning System, electronic data collectors, hand-held calculators, computers, reflectors, rods, surveyors tapes, plumb bob, sledge hammers (up to 12 lbs.), hand hammers, hatchets, brush hooks, machetes, shovels, picks, hand chisels, drills.

WHERE EMPLOYED:

By Land Surveying and Civil Engineering firms, and General Construction Contractors throughout Southern California.

WORKING CONDITIONS:

Most work is outdoors, often requiring commuting to distant job sites. Work hazards include exposure to sunburn, poison oak, snake bites, danger from moving machinery, highway traffic and falling objects.

HELPFUL HIGH SCHOOL COURSES:

Algebra
Geometry
Trigonometry

Mechanical Drawing
Drafting
Blueprint Reading

Report Writing
Keyboarding
Computer Science

9480 Utica Avenue, Suite 604 • Rancho Cucamonga, California 91730
(909) 243-7973 • (800) 863-9539 • FAX (909) 243-7979
office@scsurveyjac.org • www.scsurveyjac.org

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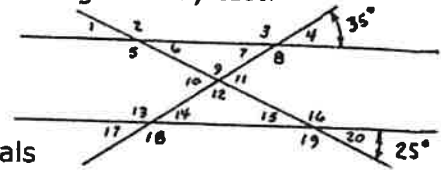
SOUTHERN CALIFORNIA SURVEYORS JOINTS APPRENTICESHIP COMMITTEE

STUDY GUIDE FOR QUALIFICATION TEST

This guide is for use in preparing for the required algebra and geometry test.

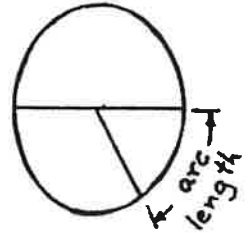
GEOMETRY

Relations of Angles between Parallel Lines and Transversals

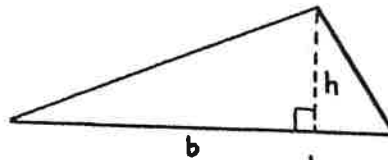


Elements of a Circle: Area, Circumference, Radius, Diameter

Figuring the Arc Length of a Fractional Part of a Circle

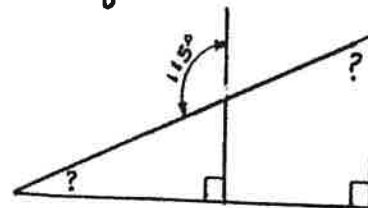


Elements and Types of Triangles



Elements of an Isosceles Triangle

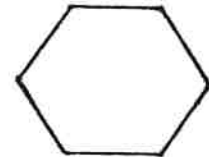
Figuring Angles in a Right Triangle



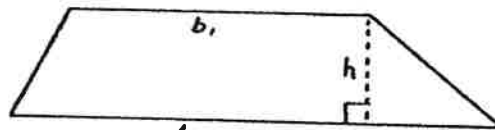
Figuring the Side of a Right Triangle

Comparing Angles in Similar Right Triangles

Elements of a Regular Polygon, Sum of Interior Angles



Elements of a Trapezoid



ALGEBRA

Multiplying and Dividing Numbers by Use of Exponents

$$A^5 \cdot A^7 = ? \quad \frac{A^{17}}{A^8} = ?$$

Use of Decimals

$$3.66 \times 1.007 = ?$$

Convert a Linear Distance from a Fraction to a Decimal

$$57' - 11\frac{7}{16}'' = 57.95'$$

Convert a Linear Distance from a Decimal to a Fraction

$$14.81' = 14' - 9\frac{3}{4}''$$

Use of Ratio and Proportions

$$\frac{4}{20} = \frac{?}{60}$$

Subtracting Negative Numbers

subtract -13.236 from -15.418

Subtracting Unlike Algebraic Terms

subtract $6x - 4y$ from $-4x + 4y$

Factoring Quadratic Equations

$$A^2 + 9A - 36 = 0$$

Solving Quadratic Equations

Solve for A after factoring

Solving Simultaneous Equations by Subtracting or Addition

$$\begin{array}{r} 16A - 14B = 76 \\ -8A - 18B = 12 \\ \hline \end{array}$$

Following a Given Formula

Solving Written Problems with Given Formulas