Solar Turbines Apprenticeship Program

Solar Turbines Incorporated
2200 Pacific Highway
San Diego, CA 92101

“Our employees have always been the key to Solar Turbines’ success. Solar's culture and the employees who embrace it have made us a global market leader. That is why we are focused on providing a workplace that values safety, quality, talent, initiative, work ethic, and diversity. We want to foster an environment in which our employees can bring a variety of skills, ideas and experiences, and contribute to that success. The Solar Apprenticeship Program leverages a supportive environment in which skilled tradesmen and tradeswomen are enabled to pass their trades from one generation to the next.

Pablo Koziner
President, Solar Turbines

To Prospective Apprentices, Welcome to Solar Turbines.

As the leadership for the Solar Turbines Apprenticeship Program, it is our pleasure to congratulate you on taking this very important first step in establishing your career in a skilled trade that is in high demand throughout our region and our state.

We take great pride in providing a positive, professional manufacturing environment in which our apprentices are given ample opportunity to gain the skills, abilities and education they need to contribute to their personal success and the future success of our company.

Solar’s program has stringent selection requirements and through this process, we are able to select top-level apprentices who continue to meet the current challenges in completing the program. The journeymen who work with our apprentices are integral in the process to continuously expand and improve our training for future apprentices.

Upon completion of the curriculum and on the job training requirements, our graduates are confident they have the complete set of skills and abilities to immediately perform at a highly proficient level in today’s manufacturing environment.

As you thoughtfully consider your application to Solar’s Apprenticeship Program, we want to encourage you to take advantage of this opportunity and wish each and every one of you the very best in your career endeavors.

Sincerely,

Ferenc Pankotai
Apprenticeship Coordinator

Manny Rivera
JAC Committee Chairman

Solar Turbines
A Caterpillar Company

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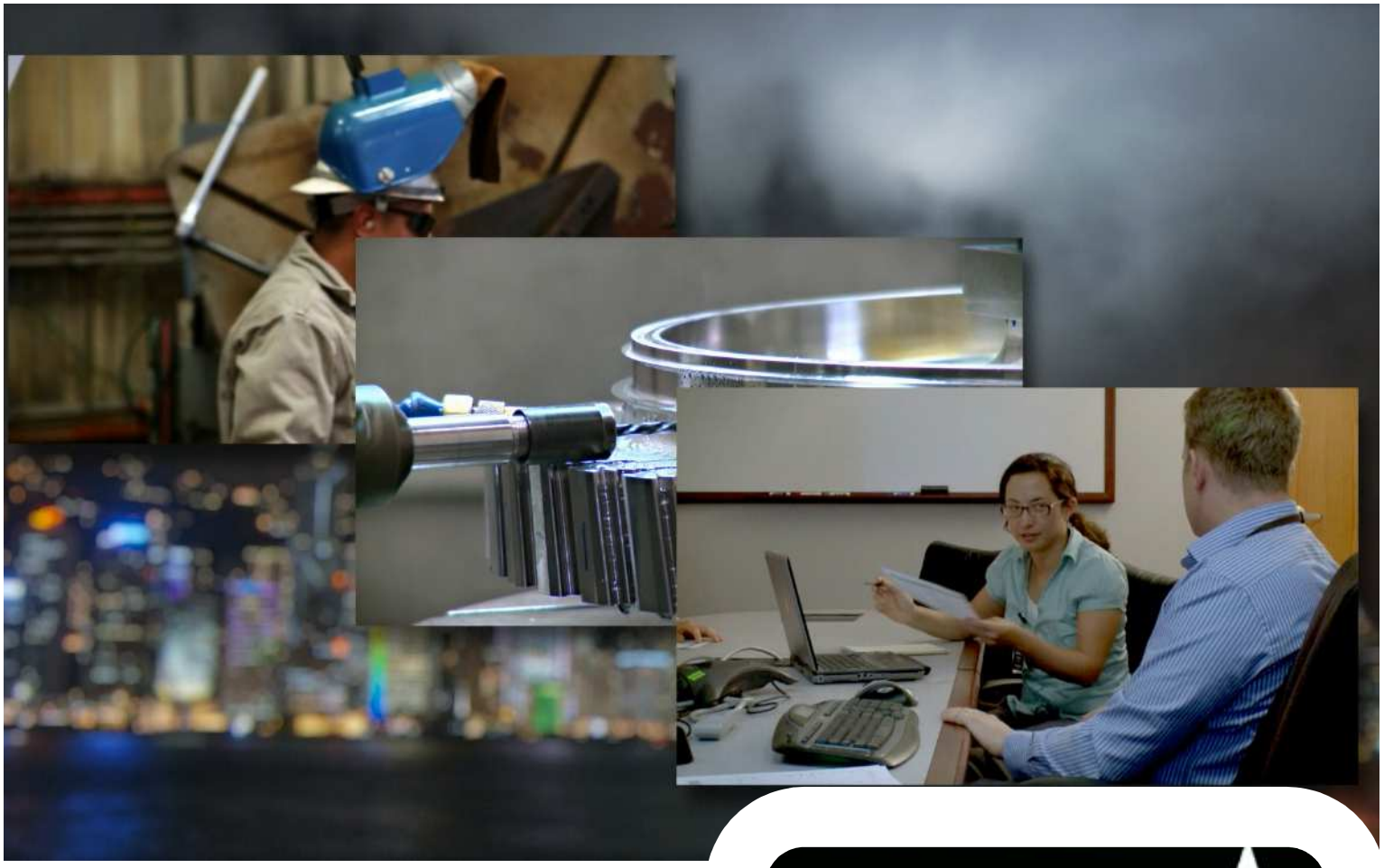
Integrity

Teamwork

Excellence

Commitment



PEOPLE

Safety

FIRST

Sustainability

Apprenticeship Program Overview

The Solar Turbines Incorporated Apprenticeship Program is an agreement between the Apprentice, the Company, the Union and the State apprenticeship training coordinating agency. This agreement provides for a specific number of training hours, part of which is spent in the classroom. The apprentice works in the plant, using the same materials, tools and equipment of a skilled journey person on actual jobs. In addition, they receive related after hours classroom training of a technical nature during the entire length of their apprenticeship.

Apprentice

The Apprenticeship Program is one that each potential apprentice should give serious consideration to before entering. While there is an initial sacrifice in terms of pay during the early phases of the program, participants gain the satisfaction of becoming a skilled crafts person in a specific trade. Few participants regret having taken the apprenticeship training.

There is sometimes a lengthy waiting list, but in view of the long range benefits, the program is well worth the wait. Applications may be submitted at any time during the year. Apprenticeship training is a great value for the person who pursues the program. Graduates from the program can advance to high level jobs within Solar. It takes effort on the part of the applicant, and it may seem like a slow process, but if you are determined and take your responsibilities seriously, you have a good chance of getting into the program and successfully completing it.

Program Details

Apprenticeship Applicant Responsibility

Read this brochure and ensure that eligibility requirements are met. Consider the apprenticeship program as a long term investment. Select a desired trade and conduct research to learn more about it. Make a serious commitment and take the initiative to complete all program requirements. Initiate the application process by submitting all the necessary documentation to the Apprenticeship Program Office promptly.

Trades Offered

Apprenticeship training programs are offered in the
following trades:

- Master Machinist
- Tool and Die Maker
- Sheet Metal Experimental Mechanic
- Precision Machine Tool Mechanic

Prerequisites

All candidates must be at least 18 years old. High
school graduation is a prerequisite for all trades in the Solar Turbines Apprenticeship Program. In addition, a good background in science,

Overview

Apprentice

ligibility and Procedure for Application:
› be eligible for Apprenticeship Training,
›plicants must:

Apply online at www.solarturbines.jobs and
llow the instructions in the job posting.

Have a high school diploma or one of the
llowing equivalents:

- Diploma through G.E.D. issued by a high school
- Certificate of High School Equivalency issued by a State Board of Education
- Certification of High School Proficiency issued by a State Board of Education
- Completion of 15 units of college courses from an accredited college with grades of "C" or better

Promptly submit **official, sealed** copies of high
chool transcripts, or above equivalent, and any
:her documents verifying training or experience
the Apprenticeship Program Office.

Solar Turbines Apprenticeship Program
P.O. Box 85376 MZ/R6
San Diego, CA 92186-5376
(+1)619-595-7583
careers@solarturbines.com

Obtain a passing score on the Differential
ptitude Test (DAT). After submitting an
›plication and transcripts, the prospective
›prentice will be scheduled to take the
ifferential Aptitude Test. This test is administered
/ the San Diego Community College District,
areer Planning and Assessment Center.

5. Pass the Caterpillar non-management test (CAT).

6. Successfully complete a Caterpillar targeted selection interview.

7. Be a selected candidate through a final interview with the Joint Apprenticeship Committee.

8. Once an offer is made, the candidate must pass all Solar Turbines pre-hire requirements including eligibility to work in the United States, a background screening, and a drug screening test.

9. Fulfill all San Diego City College requirements for enrollment.

Program Agreement

Apprenticeship Agreement. An "indenture“ or written agreement must be signed by the apprentice, by a representative of Solar, a representative of the Union, and provide for the following:

•

A Probationary Period of 2,000 hours for each apprentice during which time the agreement may be terminated at the request of either party.

•A training program of four years, which includes approximately 8,000 hours of on the job training with qualified Journeyman (including the Probationary Period).

• Advancement in wages every six months, or approximately every 1,000 hours, subject to determination by the Apprenticeship Committee that the apprentice is performing satisfactorily both at work and at school.

Training and Certification

Related Training

Apprentices attend classes at least five hours per week on their own time. They are assigned to classes where they will receive supplemental knowledge necessary for work as a journey person in their trade.

College Course Credit

Apprentices, during the period of their program, will earn college credit for their required and supplemental classes. By taking the required general education classes, they may earn an Associate in Science Degree issued by the San Diego City College. Some of the units earned may be transferable to a baccalaureate program at San Diego State University (SDSU), or other University.

Graduation Certificates

Upon successful completion of the program, the apprentice is issued a "Certificate of Completion of Apprenticeship." The apprentice receives certificates from the California Apprenticeship Council and the San Diego Community College District.

Joint Apprenticeship Committee

The Apprenticeship Program is administered by the Joint Apprenticeship Committee, composed of four Solar representatives, and four Union representatives. In addition to these eight Committee members, there is one consulting member representing the State of California, and one advisory member representing the San Diego Community Colleges. These last two members act without a vote.

Achievement

Courses and Degrees

The Solar Turbines Apprenticeship Program consists of a four year indentured apprenticeship program in a number of manufacturing and technical courses combined with on the job training.

Note: Enrollment in classes other than those listed will need to be approved by the Solar Turbines Incorporated Apprenticeship Coordinator.

SOLAR TURBINES CERTIFICATE OF ACHIEVEMENT

COURSE TITLE	Course No	UNIT
COURSES		
Print Reading and Symbology	MFET 105	3
Introduction to CNC and EDM	MACT 150	4
Engineering Drawing	ENGE 151	2
Properties and Materials	MFET 115	3
Manufacturing Processes	MFET 120	4
Intermediate Algebra/Geometry	MATH 96	5
Trigonometry	MATH 104	3
Chemistry/Chemistry Lab	CHEM 100 /100L	4
English	ENGLISH 101	3
Oral Communications	SPEECH 103	3
Approved Technical Elective of your choice (1)		3 - 4
	Total Units	**37 - 38**

ASSOCIATE IN SCIENCE DEGREE

REQUIREMENTS
COURSES (The associate degree requires a minimum of 60 units)
Solar Turbines Certificate of Achievement
District Requirements
General Education Requirements
Recommended electives to support major (see list below)

Courses and Degrees

GENERAL EDUCATION REQUIREMENTS

COURSE TITLE	UNIT
COURSES	
Humanities	3
Social and Behavioral Sciences	3

Additional district and general education requirements that are not satisfied by the certificate of achievement include the following

COURSE TITLE	UNIT
COURSES	
American Institutions	3
Multicultural Studies	3
Health Education 101	3
Physical Education-Select any two physical education courses numbered below 240, except PHYE 150 (DD 214 clears the Health and Physical Education requirements having completed 1 unit total).	1

TECHINCAL ELECTIVES	Course No
COURSES	
Introduction to CAD/CAM	MACT 160M OR S
Introduction to CNC controlled vertical machining	MACT 170
Manufacturing Automation	MFET 150
Statistical Process Control	MFET 210
Basic DC/AC Electronics	ELDT 124
Microsoft Office	CBTE 180
MIRAMAR COLLEGE	
Aircraft Welding & Sheet metal	AVIM 130B
Aircraft Hydraulic Systems	AVIM 103C

NOTE: Other college classes may be taken as your Technical Elective upon approval of the Joint Apprenticeship Committee.

There are many class choices available to satisfy the above requirements, including classes that simultaneously satisfy more than one requirement. Consult the college catalog and/or the City College Apprenticeship office at 619-388-3154.

Selection Procedure

Standards

1. The Division of Apprenticeship Standards, the California State Employment Development Department, the U.S. Department of Labor and other interested agencies are notified in writing of opportunities in the Apprenticeship Program, in accordance with the California Administrative Code Title 8, Chapter 2, Section 216A, B, and C.

2. Applicants should apply on line at http://www.solarturbines.jobs/.

3. Applicants will be required to submit proof of education and other documents for their application to be considered complete.

4. After completing the application and passing the required Tests (Differential Aptitude Test and Caterpillar Non-Management Selection Process), applicants will be notified in person, by email, by mail, or by telephone when and where to appear for interviews.

5. Members of the Joint Apprenticeship Committee will interview all qualified candidates. The following criteria will be used for the interview evaluation. A score of 85 or above must be obtained to be selected for the program.

Scoring Criteria	Points
Motivation	0 - 25
Attitude towards work	0 - 25
Attitude towards Related instruction	0 - 25
Confidence and Stability	0 - 25
Oral Response	0 - 25
Total Points	**> 85**

6. All applicants will be notified in person, by email, by mail, or by telephone regarding the results of the Committee's findings. Unsuccessful applicants must wait a year to re-apply.

Hiring Practices

7. Selection of apprentices for the program is made by an impartial method considering merit alone. Solar recruits, hires, promotes, discharges, pay, fringe benefits and other aspects of employment without regard to race color religion, sex (including pregnancy), national origin, age, disability, veteran status, genetic information, sexual orientation, or any other consideration made unlawful by federal, state or local laws. It is the practice of Solar Turbines Incorporated to ensure an operating environment in which all persons are accorded an equal opportunity. The Joint Apprenticeship Committee will take affirmative action to provide equal opportunity in the apprenticeship, and will operate the Apprenticeship Program as required under Title 29 of the Code of Federal Regulations Part 30, and any equal opportunity statutes or regulations.

8. Solar Turbines is a Drug-Free Workplace and the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited. Apprentices are required to abide by the company's requirements to maintain its status as a Drug-Free Workplace under both federal and state equivalent laws.

9. Solar Turbines participates in E-Verify. Solar provides the Social Security Administration (SSA) and, if necessary, the Department of Homeland Security (DHS), with information from each new employee's Form I-9 to confirm work authorization. Federal law requires all employers to verify the identity and employment eligibility of all persons hired to work in the United States. If the Government cannot confirm that you are authorized to work using E-Verify, Solar Turbines is required to provide you written instructions and an opportunity to contact SSA and/or DHS before taking adverse action against you, including terminating your employment.

Apprenticeship Wage and Benefit Summary

The following chart identifies the scheduled hourly rate for all trades offered in the **Solar Apprenticeship Program.**

Period	Hours	Percentage of Journeyman Rate	Dollars per Hour
1st	1,000	65%	**$18.00**
2nd	1,000	68%	**$18.75**
3rd	1,000	70%	**$19.43**
4th	1,000	75%	**$20.81**
5th	1,000	80%	**$22.20**
6th	1,000	85%	**$23.59**
7th	1,000	90%	**$24.98**
8th	1,000	95%	**$26.36**
Graduated Apprentice		**100%**	**$27.75**

Note: As an Apprentice you must be willing to obtain appropriate tools per an approved tool list, dependent on trade.

Benefits:
Solar Turbines offers a competitive compensation and benefits package including medical, dental, life insurance, vacation, 401k, incentive bonus, tuition reimbursement and professional development/advancement.

International Association of Machinists and Aerospace Workers

Solar Turbines' Apprenticeship program is a joint effort between the Apprentice, the company, the State of California, and IAM Union Local Lodge 389. While an "open shop", apprentices who wish to become Union members may do so at any time. Union membership is not a condition of employment.

The agreement between the International Association of Machinists and Aerospace Workers (IAM) Local 389, District Lodge number 947, and Solar Turbines, reflects the belief that the interests of both parties are best served by a successful business. Fundamental to this premise is an understanding that customer and employee satisfaction are keys to this success and that these can only be achieved by a focus on safety, uncompromising quality, a commitment to continuous quality improvement, and a highly productive, cost effective work environment based on shared values, mutual respect, and which provides for the opportunity for meaningful, widespread employee involvement, teamwork, and personal satisfaction.

Master Machinist

Complex Part machining

Grinding set up facility

Master Machinist

The **Master Machinist Apprentice** learns to plan the sequence of operations, perform lay out work, set up and operate machine tools and equipment used in machining experimental, maintenance, and tooling parts. He/she also learns to perform tasks such as turning, milling, grinding, electrical discharge machining (wire and die sink), and jig boring. The following table explains the hours in which an Apprentice will spend during her/his Apprenticeship as a Master Machinist.

WORK PROCESS	HOURS
Engine Lathe / Hardinge	880
EZ-Trak and Prototrak Vertical Mills	880
Jig Bores	800
Horizontal Boring Mills	640
Vertical Turret Lathes	600
OD/ID/Jig and Blanchard Grinders	400
Tool and Die Bench/Surface Grinder (Mills/Personal tools)	200
Sinker EDM	200
Wire EDM	640
Hole Popper EDM	120
C.N.C. Turning Centers	160
C.N.C. Milling Centers (includes Pro-E overview)	120
Prototrak Lathes	400
Sheet Metal, Welding, Waterjet (45S)	400
Manufacturing Planning	160
Production Rotation ie Laser Room, Broaching etc.	200
Inspection Rotation ie Cal. Lab, Gage Building etc.	160
Engine Build (45A)	80
Tool and Cutter Grind	40
Tool Design	80
Process Engineering (Braze, Welding, Heat Treat, Lasers, etc)	40
Basic Machinist Training Course	40
CNC Machinist Training Course	40
General Assignment	320
Pro-E Training (CAD Training)	120
Total Hours	**8000**

Tool and Die Maker

Complex Detail and assembly Fabrication

Tool and Die Maker

Tool and Die Maker Apprentices learn how to plan the sequence of operations, layout, develop, fabricate, assemble, rework, and prove tool dies, jigs and fixtures. The apprentice learns to build new tools and fixtures used in production and assembly of turbine components; as well as repair and modify tooling and fixtures. The following table explains the hours in which an Apprentice will spend during her/his Apprenticeship as a Tool and Die Maker.

WORK PROCESS	HOURS
Engine Lathe	1000
Manual Vertical Mill	1000
Tooling Lathe	300
Proto Trak Mill	240
Proto Trak Lathe	180
Jig Bore	500
Surface Grind	500
Blanchard	200
VTL	200
Horizontal Jig Mill	160
CNC Machining Center	80
Cylindrical Grind	120
Tool and Die Benchwork	680
Tool Design	80
Tool and Cutter Grind	40
Tool Inspection, CMM	40
Wire EDM (Tool Shop)	160
Wire EDM, Hole Popper	80
EDM Die Sinker	80
Heat Treat	40
Experiment Sheet Metal	200
Waterjet	100
Tooling Satellite (Tooling Repair)	400
Soft Tooling	40
Production Are Rotation	480
CAD/CAM (PRO-E)	200
Basic Machinist Training Course	120
CNC Machinist Training Course	120
General Assignment	660
Total Hours	8000

Experimental Sheet Metal Mechanic

Metal Press Fabrication

Experimental Sheet Metal Mechanic

The Sheet Metal Experimental Mechanic Apprentice learns how to perform layout, fabrication, and assembly of diversified types of assigned parts, subassemblies, assemblies, engines and brazing fixtures. In this program, apprentices also learn the fabrication of sheet metal components for Developmental Combustors, Injectors, and Test Rigs. Assembly in this area requires tack welding, sheet metal layout, forming, braze loading, and hand finishing to meet print requirements. The following table explains the hours in which an Apprentice will spend during her/his Apprenticeship as a Sheet Metal Experimental Mechanic.

MACHINE SHOP	Hrs
Vertical Mills	240
Horizontal Boring	120
Lathe	160
VTL	120
Grinders: OD/ID 40 hours, Blanchard 40 hours	80
EDM/Wire EDM, Hole Popper	120
CNC Machining (Haas, Cincinnati, Mazak)	80
Mfg. Planning (MD&T)	160
Tool & Die Manufacturing	320
Tool & Die Design	40

SHEET METAL SHOP	Hrs
Sheet Metal Fabrication	1000
Weld Booth	120
Expander	120
Sheet Metal Rolling	240
Injector Development Cell	360
Chicago Brake	240
Amada Brake	320
Buffalo Rolls	320
Shears	40
Parts Finish (Deburr)	280
Saws	80
Tube Bending	40
Layout	800
Piranha	40
Water Jet Operations & Programming	360

PRODUCTION AREAS	Hrs
Expander/Shrinker	40
Vacuum Furnace	40
Laser Drill/Trim	40
Hammer House:Hydraulic Press (AMD/Tangent), Drop Hammer, Punch Press, Steam Cleaner	160
Combustor Build, Roll Weld Department 036	160
Injector Build	80
Thermal Spray	40
Combustor & Injector Flow	40

ENGINE BUILD	Hrs
Engine Build (Rig, Dyno, Balance)	360
Inspection: Including CMM	40
Engine Testing	40
Rig Testing	40

RELATED CLASS TRAINING	Hrs
Pro E Training (in-house) CAD/CAM (PRO-E)	80
Braze Loading (if available)	40
Instrumentation (D280)	40
Thermal Paint	40
Basic Machinist Training Center	120
CNC Machinist Training Course	120
General Assignment	680

Total Hours	8000

Precision Machine Tool Mechanic

Complex Part machining

Precision Machine Tool Mechanic

Precision Tool Mechanic Apprentices learn to perform maintenance and alignment of precision machine tools, such as lathes, milling machines, semi and automatic machines, precision grinders, and numerical control machines. Fit and scrape bearings, assemble gear trains and fit to exacting tolerances, align spindles, columns, knees, tailstocks, ways, tables, and saddles individually and in required relation to each other. Determine and recommend major repairs in order to re-establish manufacturer's tolerances, and alignments, etc. The following table explains the hours in which an Apprentice will spend during her/his Apprenticeship as a Precision Machine Tool Mechanic.

WORK PROCESS	HOURS
Oiling & coolant: Includes classroom training	80
Moving and Rearrangement of Facilities: Includes leveling and machine check lists	280
Repair and/or refurbishment of the following:	
Pipe Fitting: All types	320
Broaches: All types	280
Lasers: All types	480
Grinders: All types	760
Lathes: All types	760
Mills: All types	760
Spot Tackers & roll welders: All types	80
EDM: All types	240
Vacuum Furnaces: All types	240
Drop Hammers & Presses: All types	160
Calibration & Alignment of all types of equipment to include laser and geometry	680
Hydraulic Systems: Troubleshoot, diagnose, refurbish	480
Machine Shop training-Department 045: Set up and operate all types of machines	320
Sheet Metal: Layout, roll & fabricate sheetmetal	120
Tool & Cutter Grind: Tool bit & Drill grinding	40
Electronics Familiarization	80
Planned Maintenance: All types	440
Tribology - bearings, ways, gears, friction, lubrication	160
Maintenance Rotation: General plant maintenance, includes maintenance/repairs, painting, carpentry, plumbing, air compressors, cooling towers, grounds	400
General Assignment	840
Total Hours	**8000**

Optional Pre-Apprentice Programs and Program Preparation Information

At the request of the California Apprenticeship Council, the Joint Apprenticeship Committee has approved the following vocational or pre-apprentice programs, which would be helpful to applicants seeking to qualify themselves for an apprenticeship.

Take any of the San Diego City College courses listed in this brochure on page 7

Take the City College Placement Test.
Call 619-388-3540 to schedule an appointment

San Diego City College Machine Shop Program	Phone Number
Website http://www.sdcity.edu/ http://www.sdcity.edu/AcademicPrograms/ProgramsofInstruction/MachineTechnologies.aspx	619-388-3400

San Diego City College Apprenticeship Programs	Phone Number
Website http://www.sdcity.edu/AcademicPrograms/ProgramsofInstruction/Apprenticeship.aspx	

San Diego City College Manufacturing Technology Programs	Phone Number
Website http://www.sdcity.edu/AcademicPrograms/ProgramsofInstruction/ManufacturingEngineeringTechnology.aspx	619-230-2424

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Optional Pre-Apprentice Programs and Program Preparation Information

Grossmont Adult School	Phone Number
Website http://adultschool.guhsd.net/	

San Diego ROP Program	Phone Number
Website http://www.sdcoe.net/rop/	858-292-3500

East County ROP Program	Phone Number
Website http://rop.guhsd.net/ **Address** 924 East Main Street, El Cajon, CA 92021	619-590-3923

Solar Turbines Apprenticeship Program	Phone Number
Website http://mysolar.cat.com/cda/layout?x=7&m=106661&id=343332 **Address** 2200 Pacific Highway MZ M-1 San Diego, CA 92101	619-237-8184

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HIGH SCHOOL TRANSCRIPT REQUEST FORM

PLEASE GIVE THIS FORM TO YOUR HIGH SCHOOL GUIDANCE OFFICE

FIRST NAME	MIDDLE	LAST NAME	
STREET	CITY	STATE	ZIP
NAME OF HIGH SCHOOL	HIGH SCHOOL ADDRESS	STATE	ZIP
BIRTHDATE (MM/DD/YYY)	SOCIAL SECURITY NUMBER	YEAR OF H.S. GRADUATION	
STUDENT'S SIGNATURE		DATE	

Please send a copy of my high school transcripts to:

Solar Turbines Incorporated
c/o Apprenticeship Program Office
P.O Box 85376 MZ-M1
San Diego, CA 92186-5376

If you have any questions, please call the Apprenticeship Program Office at 619-237-8184.
Thank you

Solar Turbines
A Caterpillar Company