

CTE Program Narrative

NAME OF COLLEGE: San Joaquin Delta College

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DATE: 4/20/2016

DIVISION: Applied Science, Business, and Technology

FACULTY: David Thomas

PROGRAM NAME: Solar Photovoltaic Installation Technician

REASON FOR APPROVAL REQUEST (Check One):

- New Program Proposal
- Program Revision Proposal (Substantial or TOP Code Changes)
- Locally Approved

TYPE OF DEGREE:

- Certificate of Achievement
- Associate of Arts
- Associate of Science
- Associate of Arts for Transfer
- Associate of Science for Transfer
- Other

TRANSFER APPLICABILITY: Yes No

ATTACHMENTS/INFORMATION REQUIRED:

Labor/Job Market Data and Analysis
Advisory Committee Meeting Minutes
List of Advisory Committee Members
Employer Survey, if applicable

1. Statement of Program Goals and Objectives

Identify the goals and objectives of the program. For CTE programs, the statement must include the main competencies students will have achieved that are required for a specific occupation. The statement must, at a minimum, clearly indicate the specific occupations or fields the program will prepare students to enter and the basic occupational competencies students will acquire.

If the program is selective, describe relevant entry criteria and the selection process for admission to the program. Specify all mandatory fees that students will incur for the program aside from the ordinary course enrollment fee.

Program goals and objectives have been established based on the industry criteria for entry-level skills and knowledge. The completion of the certificate qualifies students to take the North American Board of Certified Energy Practitioners (NABCEP) PV Entry Level Certificate of Knowledge examination.

2. Catalog Description

Enter exactly as it will appear in the catalog, including program outcomes. The description must also

- *Convey the certificate's goals(s) and objectives*
- *Provide an overview of the knowledge and skills that students who complete the requirements must demonstrate (student learning outcomes)*
- *List all prerequisite skills or enrollment limitations*
- *Mention any risks, such as occupations that are inherently competitive or low-salaried and/or occupational areas where inexperienced graduates are not generally hired.*
- *For CTE programs, the description must list the potential careers students may enter upon completion.*
- *Convey what the student may expect as an outcome*

If applicable, reference accrediting and/or licensing standards. If there is a widely recognized certification provided by a professional association, specify whether the program will fully prepare completers for the recognized professional certification.

Upon successful completion of the Certificate of Achievement in Solar Photovoltaic Installation Technician, the student will demonstrate skills, knowledge, and training necessary for entry-level employment in the field of Solar Photovoltaic installation. Specific job titles include solar installer, solar electrical installer, solar installer trainee and other emerging careers in this field. The courses included in the certificate also qualify students to take the North American Board of Certified Energy Practitioners (NABCEP) PV Entry Level Certificate of Knowledge Exam.

Program Learning Outcomes

1. The student will assess safety hazards in respect to fire, hock, and falls when installing or repairing photovoltaic systems.
2. The student will perform a site survey in order to determine the optimal location for a small size solar photovoltaic system.
3. The student will identify and calculate different sizes of wire according to the National Electrical Code and industry standards.
4. The student will describe the components in a complete grid tie photovoltaic system.

5. The student will perform testing procedures with industry tools and test equipment necessary for solar photovoltaic module installations.
6. The student will demonstrate the ability to troubleshoot basic solar photovoltaic circuits and determine potential problems with wiring and equipment malfunctions to industry standards.

3. Program Requirements

The program requirements must be consistent with the catalog description. The number of units, specific course requirements and the sequence of the courses must be coherent, complete and appropriate. Display the program requirements in a table format that includes all courses required for completion of the program (core requirements and required or restricted electives), subtotal of core units, and total program units. For each course, indicate the course department number, course title, and unit value.

Display of Program Requirements

Core Courses	Title	Units
ELEC 030	Fundamentals of Electricity	5.0
ELEC 031	Electrical Wiring Methods	7.0
ELEC 051	Fundamentals of Solar Photovoltaic Systems	3.0
ELEC 052	Advanced Solar Photovoltaic Systems Installation	4.0
ELEC 053	NABCEP Entry Level Test Review	3.0
ELEC 073	Construction Safety - OSHA	2.0

Total Units Required for Certificate	24
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Display of Proposed Sequence

First Semester	Units
ELEC 030	5
ELEC 051	3
Total	8

Second Semester	Units
ELEC 031	7
ELEC 052	4
ELEC 073	2
Total	13

Summer Term	Units
ELEC 053	3
Total	3

Proposed Sequence

Year 1, Fall = 8 units
Year 1, Spring = 13 units
Year 2, Summer = 3 units
Total Units = 24 units

4. Master Planning (Background and Rationale)

Given the stated goals and objectives, address the role the proposed program will fulfill in the college’s mission and curriculum offerings. This discussion may include some history of the program proposal origins, a description of the program purpose, and/or the program’s relevancy for the region and college.

The proposal must demonstrate a need for the program that meets the stated goals and objectives in the region the college proposes to serve with the certificate. A proposed new certificate must not cause undue competition with an existing program at another college.

If any expenditures for facilities, equipment or library and learning resources are planned, please explain the specific needs in this section.

If the program is to be offered in close cooperation with one or more specific employers, a discussion of the relationship must be provided.

Solar Photovoltaic Installation Technician Certificate of Achievement is designed to prepare students to enter into the solar electrical installation field. This program has been designed in part with the assistance of industry partners through an advisory board/consortium. Committee members have discussed course content and how solar courses would be sequenced as well as NABCEP certification. According to them, installers should become electricians since the scope of work requires some of the same skills and knowledge that an electrical program offers but with a specialization in the solar industry. The program is tied to existing electrical technology classes and the new classes and curriculum has been created in order to focus on solar photovoltaic systems specifically. The courses and program will be part of the State of California accepted coursework in order to qualify for the electrician trainee license in order to work for an electrical contractor to install electrical and solar systems as required by State of California regulations. The completion of the certificate qualifies students to take the North American Board of Certified Energy Practitioners (NABCEP) PV Entry Level Certificate of Knowledge examination. Students entering the Solar Photovoltaic Installation Technician Certificate of Achievement may continue and complete the Electrical Technology Certificate of Achievement and/or the future Electrical Technology Associate of Science degree.

5. Need for Program

a. Enrollment and Completer Projections

Address and justify the number of projected students or “annual completers” to be awarded the certificate each year after the program is fully established.

Course	Title	2013-2014		2014-2015	
		Annual Sections	Annual Enrollment Total	Annual Sections	Annual Enrollment Total
CB01: Course Department Number	CB02: Course Title				

ELEC 030	Fundamentals of Electricity	5	112	8	150
ELEC 031	Electrical Wiring Methods	1	26	2	61
ELEC 051	Fundamentals of Solar Photovoltaic Systems	0	0	2	31
ELEC 052	Advanced Solar Photovoltaic Systems Installation	0	0	1	7
ELEC 053	NABCEP Entry Level Test Review	0	0	0	0
ELEC 073	Construction Safety - OSHA	0	0	0	0

Annual Completers – Projected: 5

b. Labor Market Information (LMI)

Summarize the Labor Market Information (LMI) and employment outlook (Including citation for the source of the data) for students exiting the program.

Enter table or chart as a separate attachment.

See Supporting Documentation below

c. Employer Survey (if applicable)

When strong LMI data is not available, an employer survey may be submitted. Provide a copy of the survey, including the number of those surveyed, number of responses, and a summary of the results. The survey must address the extent to which the proposed degree or certificate will be valued by employers.

Not applicable

6. Place of Program in Curriculum/Similar Programs

Review the college’s existing program inventory, then address the following questions:

- *Do any active inventory records need to be made inactive or changed in connection with the approval or the proposed program? If yes, please specify.*
- *Does the program replace any existing program(s) on the college’s inventory? Provide relevant details if this program is related to the termination or scaling down of another program(s).*
- *What related programs are offered by the college?*

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7. Similar Programs at Other Colleges in Service Area

List similar programs offered at other colleges within the Central/Mother Lode Region that may be adversely impacted. Enter 'none' if there are no similar programs.

College	Program
None	

The Solar Photovoltaic Installation Technician Certificate of Achievement will not impact any other colleges in the immediate area as none offer this certificate. The two nearest colleges that offer a program certificate are Diablo Valley College (45 miles away) and American River College (86 miles) and are at significant distances from our South Campus site where the program will be offered.

Supporting documentation required

Labor Market Information

In a separate attachment, provide current Labor Market Information showing that jobs are available for program completers within the local service area. Statewide or national LMI may be included as supplementary support but evidence of need in the specific college service area or region is also necessary.

Area	Code	Occupation	Est Yr-Proj Yr	Estimated Employment	Numeric Change
Mother Lode Region	472111	Electricians	2012 - 2022	140	40
Mother Lode Region	492000	Electrical and Electronic Equipment Mechanics, Installers, a	2012 - 2022	180	30
Mother Lode Region	492094	Electrical and Electronics Repairers, Commercial and Industr	2012 - 2022	20	10

Source: State of California, EDD, Occupational Projections, <http://www.labormarketinfo.edd.ca.gov/>

The initial LMI analysis was not available for the college service area since this is an emerging technology and the job labor data has not been presented such as in the Central Region, Sacramento MSA and State of California. We feel that the Central Region will reflect the service area and can be used for analysis purposes. Solar Photovoltaic Installers that are entry-level workers earn \$15.09 per hour and more experienced workers earn \$27.45 per hour according to the Centers of Excellence study of the Sacramento SMA. According to another study done by the Centers of Excellence in 2012 on the "Solar Industry & Occupations: Distributed and Utility-Scale Generation" extrapolated employment and growth for solar occupations in the Central and South Central California and determined that the 12-month growth rate for Solar Photovoltaic Installers/Technicians would grow at 71.3% rate with 293 new and replacement jobs potentially available. These growth rates reflect an above normal job growth rate for the area and reinforces the need for a program that prepares students for this emerging occupation specifically for this region. Furthermore, students often travel outside San Joaquin County to gain employment and have access to employment outside the region. Many former San Joaquin Delta College students are employed in the Contra Costa, Sacramento, Alameda, Santa Clara counties in the electrical field doing solar installations.

List of Members of Advisory Committee

This list must include advisory committee member names, job titles, and affiliations.

Name	Title	Affiliation
Sam Karufeh	Business Representative	IBEW Local #595 East

David Brooks	Training Director	San Joaquin and Calaveras Electrical JATC
Matthew Baker	Training Supervisor	Pacific Gas and Electric
Chris Riley	Pre-Construction Manager	Collins Electric Inc.
Mark Hajder	Regional Ops Manager	Solar City Inc.
Kristin Anzaldo-Bohi	Recruiting Manager	Solar City Inc.
Rick Leddy	President	Mar-Tech Engineering
Cody Hoffman	Sales	Platt Electric
Chuck Klein	CEO	Klein Educational Inc.
Amy Pettipence	Student	San Joaquin Delta College
Larry Ancheta	Student	San Joaquin Delta College
Rocky LaJeunesse	Counselor	San Joaquin Delta College
Ruben Martinez	Adjunct Faculty and Owner	RM Electric
Gillian Murphy	Dean	San Joaquin Delta College
Mary Jo Zimmerman	Faculty	San Joaquin Delta College
David Thomas	Faculty	San Joaquin Delta College

Recommendation of Advisory Committee (Meeting Minutes)

In a separate attachment, provide minutes of the advisory committee meetings at which the program was discussed and approved, with relevant areas highlighted, as well as a summary of the advisory committee recommendations.

See Minutes below

San Joaquin Delta College

Electrical Technology Advisory Board Meeting

Solar Technology Advisory Board Meeting

April 14, 2015
3:30 p.m.

Budd 106, Delta College Campus
David N. Thomas, Faculty Organizer

MEETING MINUTES

Meeting began at 3:32PM

INTRODUCTIONS

In attendance:

Sam Karufeh – IBEW Local #595 East
Matthew Baker – Pacific Gas & Electric
Rocky Lajeunesse – Counselor at San Joaquin Delta College
Mark Hajder – Regional Operations Manager at Solar City
Gillian Murphy – Dean at San Joaquin Delta College
David Thomas – Faculty

ITEMS FOR DISCUSSION, ANNOUNCEMENT, OR ACTION

-Associate of Science in Electrical Technology

Thomas updated that Associate of Science degree in Electrical Technology is ready for launch and is aligned with the State of California's curriculum as approved educational provider in the electrician trainee program.

-Certificates – Hajder mentioned that it is important to infuse renewable energy and solar into our program. Thomas gave update as to progress for certificates in Electrical Technology – Electrician Trainee program, Electrical Technology – Solar Installation, Electrical Technology – Apprenticeship option. Through general consensus these programs were approved for introduction into the Electrical Technology program again with new committee members.

-Karufeh mentioned that it was important that it is aligned with the electrician trainee program as state approval. Hajder mentioned that he sees in the next couple of years that the industry is moving in the direction that solar installers have a electrician trainee card. Hajder also mentioned that manufacturing and installation find value in NABCEP certification. He also said that the industry finds value having training in OSHA 30 training, and NFPA 70E training.

-It was mentioned that all the classes for the Electrician Trainee program need to be offered at night in addition to day classes to make sure that in order to continue working in the electrical field.

-Mary Jo Zimmerman has received the update training to be an OSHA approved trainer. The optional OSHA topics was reviewed by board members and it was recommended that she add the excavations, confined space entry, safety and health programs, scaffolds, tools and ergonomics.

-CTE Funding 2014-2015 project submission

- Project #1- Amatrol AC/DC Trainers \$82,000
- Project #2- Stand-alone Solar PV System \$12,000
- Professional Growth – OSHA Train-the-Trainer Certification

-Solar Technology program – Discussion was done that MH was not attracting enough students and the majority of students were traveling from Stockton and other areas. Thomas reported that the facilities were inadequate due to space limitation. Hadjer mentioned that there was a demand for workers in Solar industry and didn't see a slow done in the near future.

College Mission Statement (BP 1200)

The mission of San Joaquin Delta College is to provide excellent post-secondary education that serves the needs of students, the College District and the community through continuing, transfer, career and technical education, and economic development. To achieve this objective, the faculty and staff are committed to providing comprehensive instructional programs, student services and public services that are high quality.

In fulfilling its mission, San Joaquin Delta College acts upon the following principles:

- Commitment to excellence requires effective collaboration, respect for cultural diversity, appreciation of historical perspective, open communication, high academic standards, a vital connection to the arts and cultures of the community, and competitive athletics.
- Student success and equity are founded on a well-coordinated and institutionally-integrated developmental education program.
- Educational resources are available to all students regardless of age, disability, gender, or ethnicity.
- Institutional renewal must include continuous improvement through new and revised curricula; the use of student learning outcomes to enhance student performance; new and effective technologies; and ongoing faculty and staff professional development.
- All aspects of the College encourage good citizenship, responsible leadership, ethical behavior, and the appreciation of lifelong learning

San Joaquin Delta College
Agenda – Curriculum Committee
March 12, 2013

- Baker reported that 40% of the PG&E physical trades workers are entering eligibility retirement with the next 3 years and 60% with the next 5 years. Thomas mentioned that there may be an opportunity for training in Pre-apprenticeship for Utility workers and especially for veterans. Hadjer also mentioned that veterans make great workers.
- Karufeh mentioned that it was important for our program to devote time to soft-skills and entry-level skills for the electrical trade.
- Baker mentioned that the Energy Center is looking at more online and that our college should look at more online due to worker time constraints and the industry needs.

ADJOURNMENT

Meeting adjourned at 4:46 PM

