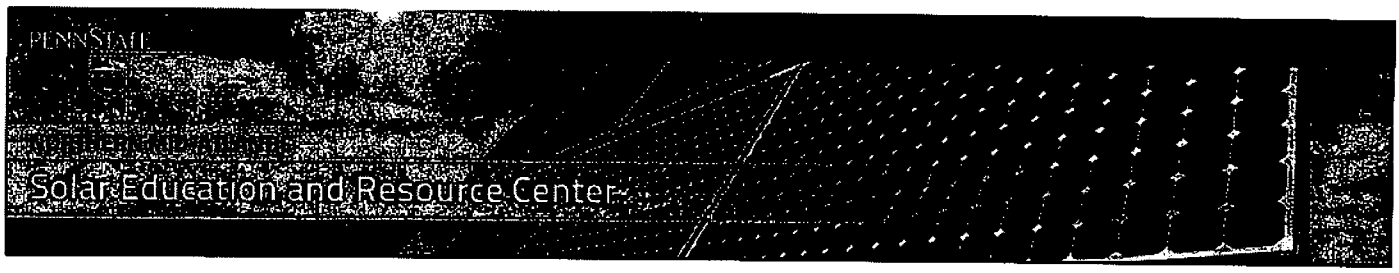

Pennsylvania State University
Solar Instructor Professional Development Program
Course Evaluation

Please help us improve our instructor training program by completing this form.

Course: SIPD 452 – Intermediate Solar Thermal Installation and Commissioning
Date: July 25-29, 2011
Location: Pennsylvania College of Technology, Williamsport, PA
Instructor: Vaughan Woodruff, Kennebec Valley Community College

Name of Student: Jerry Welshans

Name of Institution: Penn College

Please indicate your primary motivation(s) for coming to this training (circle):

- Hands-on experience
- Teaching materials
- Training lab designs
- Training program development ideas
- Professional network
- Other: To gain a basic understanding of Solar systems and clarify some issues that I have had with

How did you *FIRST* hear about this training opportunity? (please specify) On line classes I am taking PSU

How far did you travel (one way) to get to this course (circle one)?

0-50 miles	101-150 miles	201-500 miles
51-100 miles	151-200 miles	More than 500 miles

Would you recommend this training workshop to your colleagues?

Yes -

Course Evaluation

Please grade the following program characteristics on a scale of A to F (A = Excellent, F = Failing). If you are unsure of the question or answer, or feel that the question does not apply to you, please choose the Not Applicable (N/A) rating.

Location and Facilities

Classroom comfort (size, seating, lighting, etc)	A	B	C	D	F	N/A
Lab facilities (relevance, functional, organized)	A	B	C	D	F	N/A
Facility amenities (bathrooms, break areas)	A	B	C	D	F	N/A

Strengths and suggestions for improvements:

Application Procedure and Logistics

It has been so long that I don't Remember

Training application form (understandable, easy)	A	B	C	D	F	N/A
Confirmation email (understandable, informative)	A	B	C	D	F	N/A
Timeliness of correspondence	A	B	C	D	F	N/A
Helpfulness of NMASERC staff	A	B	C	D	F	N/A
Pre-training materials	A	B	C	D	F	N/A

What additional information/materials, if any, should be provided prior to the training? Recommendation of Math

Strengths and suggestions for improvements:
A Math Tutorial

Instruction and Materials

Training outline (understandable, accurate)	A	B	C	D	F	N/A
Resources (manuals, handouts)	A	B	C	D	F	N/A
Organization (lectures, hands-on)	A	B	C	D	F	N/A
Content (relevant, accurate)	A	B	C	D	F	N/A
Hands-on activities (appropriate, demonstrative)	A	B	C	D	F	N/A
Training discussions (informative, useful)	A	B	C	D	F	N/A
Overall instructor knowledge	A	B	C	D	F	N/A
Overall teaching method	A	B	C	D	F	N/A

Please identify and describe any instructor or content specific comments/suggestions:

Please identify additional content areas/skills for which you would like to receive training and resources:

Strengths and suggestions for improvement:

Very Informative

(Optional) Please provide a quote about your general experience at this training for us to provide to the Department of Energy: It was very intense and the days were long. It would have been better for someone old and challenged as I to have it extended

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Perception of Competencies

On a scale of 1-5 (1= very confident, 5 = not at all confident), please rate your familiarity with the following topics as a result of taking this course. This first section **(Desired Outcomes)** measures your knowledge gained in the course based upon the desired outcomes. The second section **(Classroom Competency)** asks you to critique your ability to implement what you have learned in a classroom setting.

If you are unsure, or do not understand the question, please chose Don't Know (D/K).

Desired Outcomes

Identify safety hazards and demonstrate appropriate safety practices associated with solar thermal system installation and maintenance.

(1) 2 3 4 5 D/K

Identify typical solar thermal systems and their components.

(1) 2 3 4 5 D/K

Review a typical solar thermal system design and determine appropriate layout and configuration.

1 (2) 3 4 5 D/K

Demonstrate proper site assessment practices by: (a) assessing the suitability of a site; (b) assessing the suitability of a design; (c) identifying proper siting for collectors, storage tank, and components; and (d) providing reasonable performance estimates.

(1) 2 3 4 5 D/K

Identify and demonstrate best practices for installing collectors and associated racking, as well as best practices for flashing and sealing roof penetrations.

(1) 2 3 4 5 D/K

Identify proper installation of potable and solar piping in solar thermal systems as dictated by local plumbing and mechanical codes.

1 2 3 4 5 D/K

Demonstrate understanding of solar thermal control systems.

1 2 3 4 5 D/K

Determine solutions for performance problems associated with solar thermal systems and their components.

1 2 3 4 5 D/K

Identify third-party certification organizations and their relevance in the field of solar heating and cooling.

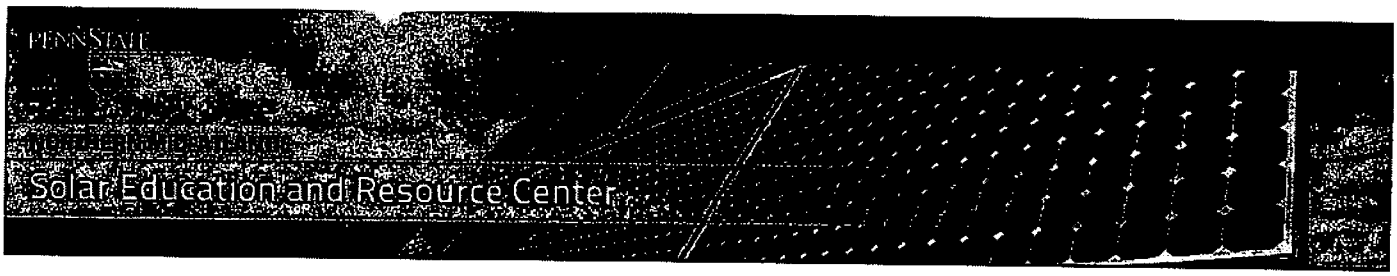
1 2 3 4 5 D/K

Classroom Competency

Conduct an introductory solar thermal lecture	1	2	3	4	5	D/K
Explain solar thermal design principles to students	1	2	3	4	5	D/K
Organize a field experience for solar thermal system siting	1	2	3	4	5	D/K
Conduct system sizing exercises with students	1	2	3	4	5	D/K
Estimate solar domestic hot water system costs	1	2	3	4	5	D/K
Conduct a basic pressurized system installation	1	2	3	4	5	D/K
Conduct a basic drainback system installation	1	2	3	4	5	D/K
Conduct a basic evacuated tube system installation	1	2	3	4	5	D/K
Demonstrate safety procedures on a mock training roof	1	2	3	4	5	D/K
Facilitate an installation on a mock roof with a student group	1	2	3	4	5	D/K
Solve system design challenges with student groups	1	2	3	4	5	D/K
Conduct testing and troubleshooting protocol with students	1	2	3	4	5	D/K
Outline a training program scope and sequence for your school	1	2	3	4	5	D/K
Design and build a solar thermal training lab	1	2	3	4	5	D/K
Outline a strategy for training program accreditation	1	2	3	4	5	D/K

Overall Program Comments/Areas for Improvement (Use back of sheet if needed):

As this is my first major exposure to Solar H_2O, I realize that I have A lot to Accomplish prior to Instructing. This gave me a good Foundation to build on and considerable Information to build on. The limitations are mine and in no way reflect on the program. It helped me understand the components with the help Vaughan has given this past month



Pennsylvania State University
Solar Instructor Professional Development Program
Course Evaluation

Please help us improve our instructor training program by completing this form.

Course: SIPD 452 – Intermediate Solar Thermal Installation and Commissioning
Date: July 25-29, 2011
Location: Pennsylvania College of Technology, Williamsport, PA
Instructor: Vaughan Woodruff, Kennebec Valley Community College

Name of Student: Wes Grebski
Name of Institution: Penn - State Hazleton

Please indicate your primary motivation(s) for coming to this training (circle):

- Hands-on experience
- Teaching materials
- Training lab designs
- Training program development ideas
- Professional network
- Other:

How did you *FIRST* hear about this training opportunity? (please specify)

How far did you travel (one way) to get to this course (circle one)?

0-50 miles	101-150 miles	201-500 miles
51-100 miles	151-200 miles	More than 500 miles

Would you recommend this training workshop to your colleagues?

Yes

Course Evaluation

Please grade the following program characteristics on a scale of A to F (A = Excellent, F = Failing). If you are unsure of the question or answer, or feel that the question does not apply to you, please choose the Not Applicable (N/A) rating.

Location and Facilities

Classroom comfort (size, seating, lighting, etc)	A	B	C	D	F	N/A
Lab facilities (relevance, functional, organized)	A	B	C	D	F	N/A
Facility amenities (bathrooms, break areas)	A	B	C	D	F	N/A

Strengths and suggestions for improvements:

Application Procedure and Logistics

Training application form (understandable, easy)	A	B	C	D	F	N/A
Confirmation email (understandable, informative)	A	B	C	D	F	N/A
Timeliness of correspondence	A	B	C	D	F	N/A
Helpfulness of NMASERC staff	A	B	C	D	F	N/A
Pre-training materials	A	B	C	D	F	N/A

What additional information/materials, if any, should be provided prior to the training?

Strengths and suggestions for improvements:

Instruction and Materials

Training outline (understandable, accurate)	A	B	C	D	F	N/A
Resources (manuals, handouts)	A	B	C	D	F	N/A
Organization (lectures, hands-on)	A	B	C	D	F	N/A
Content (relevant, accurate)	A	B	C	D	F	N/A
Hands-on activities (appropriate, demonstrative)	A	B	C	D	F	N/A
Training discussions (informative, useful)	A	B	C	D	F	N/A
Overall instructor knowledge	A	B	C	D	F	N/A
Overall teaching method	A	B	C	D	F	N/A

Please identify and describe any instructor or content specific comments/suggestions:

Please identify additional content areas/skills for which you would like to receive training and resources:

Strengths and suggestions for improvement:

(Optional) Please provide a quote about your general experience at this training for us to provide to the Department of Energy:

Perception of Competencies

On a scale of 1-5 (1= very confident, 5 = not at all confident), please rate your familiarity with the following topics as a result of taking this course. This first section **(Desired Outcomes)** measures your knowledge gained in the course based upon the desired outcomes. The second section **(Classroom Competency)** asks you to critique your ability to implement what you have learned in a classroom setting.

If you are unsure, or do not understand the question, please chose Don't Know (D/K).

Desired Outcomes

Identify safety hazards and demonstrate appropriate safety practices associated with solar thermal system installation and maintenance.

1 2 3 4 5 D/K

Identify typical solar thermal systems and their components.

1 2 3 4 5 D/K

Review a typical solar thermal system design and determine appropriate layout and configuration.

1 2 3 4 5 D/K

Demonstrate proper site assessment practices by: (a) assessing the suitability of a site; (b) assessing the suitability of a design; (c) identifying proper siting for collectors, storage tank, and components; and (d) providing reasonable performance estimates.

1 2 3 4 5 D/K

Identify and demonstrate best practices for installing collectors and associated racking, as well as best practices for flashing and sealing roof penetrations.

1 2 3 4 5 D/K

Identify proper installation of potable and solar piping in solar thermal systems as dictated by local plumbing and mechanical codes.

1 2 3 4 5 D/K

Demonstrate understanding of solar thermal control systems.

1 2 3 4 5 D/K

Determine solutions for performance problems associated with solar thermal systems and their components.

1 2 3 4 5 D/K

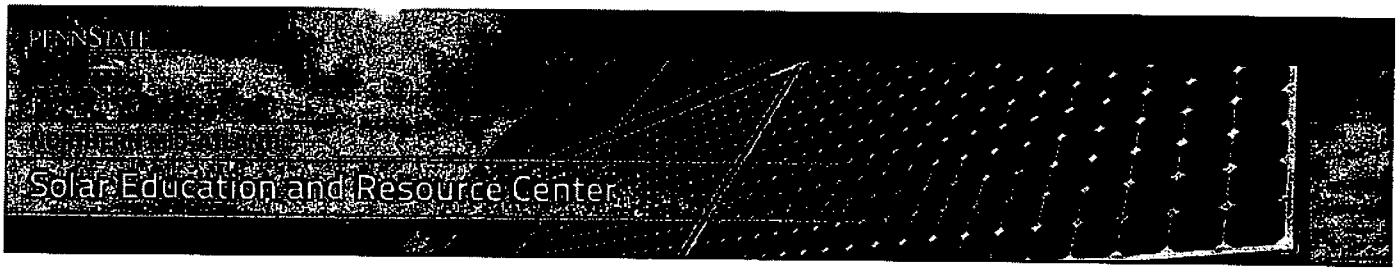
Identify third-party certification organizations and their relevance in the field of solar heating and cooling.

1 2 3 4 5 D/K

Classroom Competency

Conduct an introductory solar thermal lecture	1	2	3	4	5	D/K
Explain solar thermal design principles to students	1	2	3	4	5	D/K
Organize a field experience for solar thermal system siting	1	2	3	4	5	D/K
Conduct system sizing exercises with students	1	2	3	4	5	D/K
Estimate solar domestic hot water system costs	1	2	3	4	5	D/K
Conduct a basic pressurized system installation	1	2	3	4	5	D/K
Conduct a basic drainback system installation	1	2	3	4	5	D/K
Conduct a basic evacuated tube system installation	1	2	3	4	5	D/K
Demonstrate safety procedures on a mock training roof	1	2	3	4	5	D/K
Facilitate an installation on a mock roof with a student group	1	2	3	4	5	D/K
Solve system design challenges with student groups	1	2	3	4	5	D/K
Conduct testing and troubleshooting protocol with students	1	2	3	4	5	D/K
Outline a training program scope and sequence for your school	1	2	3	4	5	D/K
Design and build a solar thermal training lab	1	2	3	4	5	D/K
Outline a strategy for training program accreditation	1	2	3	4	5	D/K

Overall Program Comments/Areas for Improvement (Use back of sheet if needed):



Pennsylvania State University
Solar Instructor Professional Development Program
Course Evaluation

Please help us improve our instructor training program by completing this form.

Course: SIPD 452 – Intermediate Solar Thermal Installation and Commissioning
Date: July 25-29, 2011
Location: Pennsylvania College of Technology, Williamsport, PA
Instructor: Vaughan Woodruff, Kennebec Valley Community College

Name of Student: George Dzurina
Name of Institution: Middlesex County College

Please indicate your primary motivation(s) for coming to this training (circle):

- Hands-on experience
- Teaching materials
- Training lab designs
- Training program development ideas
- Professional network
- Other:

How did you *FIRST* hear about this training opportunity? (please specify)

How far did you travel (one way) to get to this course (circle one)?

0-50 miles	101-150 miles	201-500 miles
51-100 miles	151-200 miles	More than 500 miles

Would you recommend this training workshop to your colleagues?

Yes

Course Evaluation

Please grade the following program characteristics on a scale of A to F (A = Excellent, F = Failing). If you are unsure of the question or answer, or feel that the question does not apply to you, please choose the Not Applicable (N/A) rating.

Location and Facilities

Classroom comfort (size, seating, lighting, etc)	A	B	C	D	F	N/A
Lab facilities (relevance, functional, organized)	A	B	C	D	F	N/A
Facility amenities (bathrooms, break areas)	A	B	C	D	F	N/A

Strengths and suggestions for improvements:

Application Procedure and Logistics

Training application form (understandable, easy)	A	B	C	D	F	N/A
Confirmation email (understandable, informative)	A	B	C	D	F	N/A
Timeliness of correspondence	A	B	C	D	F	N/A
Helpfulness of NMASERC staff	A	B	C	D	F	N/A
Pre-training materials	A	B	C	D	F	N/A

What additional information/materials, if any, should be provided prior to the training?

Most students will probably never design and install A system so course content might need to be reviewed as some students will actual design & install systems

Strengths and suggestions for improvements:

Instruction and Materials

Training outline (understandable, accurate)	A	B	C	D	F	N/A
Resources (manuals, handouts)	A	B	C	D	F	N/A
Organization (lectures, hands-on)	A	B	C	D	F	N/A
Content (relevant, accurate)	A	B	C	D	F	N/A
Hands-on activities (appropriate, demonstrative)	A	B	C	D	F	N/A
Training discussions (informative, useful)	A	B	C	D	F	N/A
Overall instructor knowledge	A	B	C	D	F	N/A
Overall teaching method	A	B	C	D	F	N/A

Please identify and describe any instructor or content specific comments/suggestions:

Please identify additional content areas/skills for which you would like to receive training and resources:

More design information. We did not design one typical system during the course content. It was hard to piece everything together to put a project together.

Strengths and suggestions for improvement:

(Optional) Please provide a quote about your general experience at this training for us to provide to the Department of Energy:

The overall training experience was excellent.

Perception of Competencies

On a scale of 1-5 (1= very confident, 5 = not at all confident), please rate your familiarity with the following topics as a result of taking this course. This first section **(Desired Outcomes)** measures your knowledge gained in the course based upon the desired outcomes. The second section **(Classroom Competency)** asks you to critique your ability to implement what you have learned in a classroom setting.

If you are unsure, or do not understand the question, please chose Don't Know (D/K).

Desired Outcomes

Identify safety hazards and demonstrate appropriate safety practices associated with solar thermal system installation and maintenance.

1 2 3 4 5 D/K

Identify typical solar thermal systems and their components.

1 2 3 4 5 D/K

Review a typical solar thermal system design and determine appropriate layout and configuration.

1 2 3 4 5 D/K

Demonstrate proper site assessment practices by: (a) assessing the suitability of a site; (b) assessing the suitability of a design; (c) identifying proper siting for collectors, storage tank, and components; and (d) providing reasonable performance estimates.

1 2 3 4 5 D/K

Identify and demonstrate best practices for installing collectors and associated racking, as well as best practices for flashing and sealing roof penetrations.

1 2 3 4 5 D/K

Identify proper installation of potable and solar piping in solar thermal systems as dictated by local plumbing and mechanical codes.

1 2 3 4 5 D/K

Demonstrate understanding of solar thermal control systems.

1 2 3 4 5 D/K

Determine solutions for performance problems associated with solar thermal systems and their components.

1 2 3 4 5 D/K

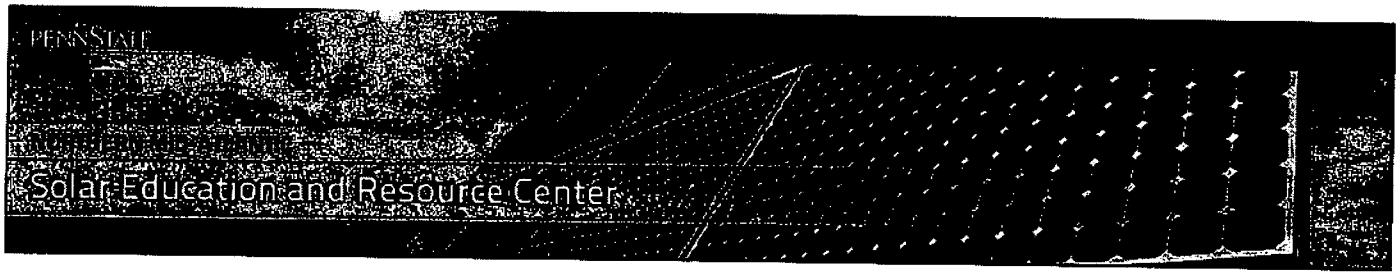
Identify third-party certification organizations and their relevance in the field of solar heating and cooling.

1 2 3 4 5 D/K

Classroom Competency

Conduct an introductory solar thermal lecture	1	2	3	4	5	D/K
Explain solar thermal design principles to students	1	2	3	4	5	D/K
Organize a field experience for solar thermal system siting	1	2	3	4	5	D/K
Conduct system sizing exercises with students	1	2	3	4	5	D/K
Estimate solar domestic hot water system costs	1	2	3	4	5	D/K
Conduct a basic pressurized system installation	1	2	3	4	5	D/K
Conduct a basic drainback system installation	1	2	3	4	5	D/K
Conduct a basic evacuated tube system installation	1	2	3	4	5	D/K
Demonstrate safety procedures on a mock training roof	1	2	3	4	5	D/K
Facilitate an installation on a mock roof with a student group	1	2	3	4	5	D/K
Solve system design challenges with student groups	1	2	3	4	5	D/K
Conduct testing and troubleshooting protocol with students	1	2	3	4	5	D/K
Outline a training program scope and sequence for your school	1	2	3	4	5	D/K
Design and build a solar thermal training lab	1	2	3	4	5	D/K
Outline a strategy for training program accreditation	1	2	3	4	5	D/K

Overall Program Comments/Areas for Improvement (Use back of sheet if needed):



Pennsylvania State University
Solar Instructor Professional Development Program
Course Evaluation

Please help us improve our instructor training program by completing this form.

Course: SIPD 452 – Intermediate Solar Thermal Installation and Commissioning
Date: July 25-29, 2011
Location: Pennsylvania College of Technology, Williamsport, PA
Instructor: Vaughan Woodruff, Kennebec Valley Community College

Name of Student: Chris

Name of Institution: Mountwest CTC

Please indicate your primary motivation(s) for coming to this training (circle):

- (•) Hands-on experience
- (•) Teaching materials
- (•) Training lab designs
- (•) Training program development ideas
- Professional network
- Other:

How did you *FIRST* hear about this training opportunity? (please specify)

Zoha

How far did you travel (one way) to get to this course (circle one)?

0-50 miles	101-150 miles	201-500 miles
51-100 miles	151-200 miles	More than 500 miles

Would you recommend this training workshop to your colleagues?

absolutely yes

Course Evaluation

Please grade the following program characteristics on a scale of A to F (A = Excellent, F = Failing). If you are unsure of the question or answer, or feel that the question does not apply to you, please choose the Not Applicable (N/A) rating.

Location and Facilities

Classroom comfort (size, seating, lighting, etc)	A	B	C	D	F	N/A
Lab facilities (relevance, functional, organized)	A	B	C	D	F	N/A
Facility amenities (bathrooms, break areas)	A	B	C	D	F	N/A

Strengths and suggestions for improvements:

Application Procedure and Logistics

Training application form (understandable, easy)	A	B	C	D	F	N/A
Confirmation email (understandable, informative)	A	B	C	D	F	N/A
Timeliness of correspondence	A	B	C	D	F	N/A
Helpfulness of NMASERC staff	A	B	C	D	F	N/A
Pre-training materials	A	B	C	D	F	N/A

What additional information/materials, if any, should be provided prior to the training?

Strengths and suggestions for improvements:

Instruction and Materials

Training outline (understandable, accurate)	A	B	C	D	F	N/A
Resources (manuals, handouts)	A	B	C	D	F	N/A
Organization (lectures, hands-on)	A	B	C	D	F	N/A
Content (relevant, accurate)	A	B	C	D	F	N/A
Hands-on activities (appropriate, demonstrative)	A	B	C	D	F	N/A
Training discussions (informative, useful)	A	B	C	D	F	N/A
Overall instructor knowledge	A	B	C	D	F	N/A
Overall teaching method	A	B	C	D	F	N/A

Please identify and describe any instructor or content specific comments/suggestions:

Please identify additional content areas/skills for which you would like to receive training and resources:

Strengths and suggestions for improvement:

(Optional) Please provide a quote about your general experience at this training for us to provide to the Department of Energy:

Perception of Competencies

On a scale of 1-5 (1= very confident, 5 = not at all confident), please rate your familiarity with the following topics as a result of taking this course. This first section **(Desired Outcomes)** measures your knowledge gained in the course based upon the desired outcomes. The second section **(Classroom Competency)** asks you to critique your ability to implement what you have learned in a classroom setting.

If you are unsure, or do not understand the question, please chose Don't Know (D/K).

Desired Outcomes

Identify safety hazards and demonstrate appropriate safety practices associated with solar thermal system installation and maintenance.

1 2 3 4 5 D/K

Identify typical solar thermal systems and their components.

1 2 3 4 5 D/K

Review a typical solar thermal system design and determine appropriate layout and configuration.

1 2 3 4 5 D/K

Demonstrate proper site assessment practices by: (a) assessing the suitability of a site; (b) assessing the suitability of a design; (c) identifying proper siting for collectors, storage tank, and components; and (d) providing reasonable performance estimates.

1 2 3 4 5 D/K

Identify and demonstrate best practices for installing collectors and associated racking, as well as best practices for flashing and sealing roof penetrations.

1 2 3 4 5 D/K

Identify proper installation of potable and solar piping in solar thermal systems as dictated by local plumbing and mechanical codes.

1 2 3 4 5 D/K

Demonstrate understanding of solar thermal control systems.

1 2 3 4 5 D/K

Determine solutions for performance problems associated with solar thermal systems and their components.

1 2 3 4 5 D/K

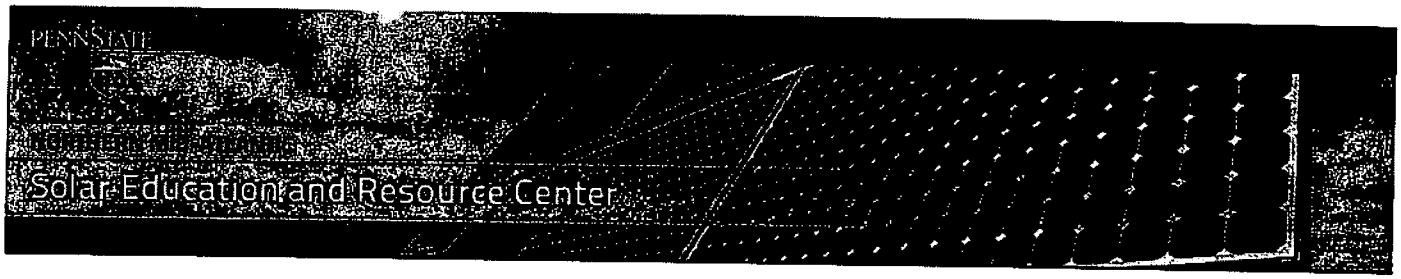
Identify third-party certification organizations and their relevance in the field of solar heating and cooling.

1 2 3 4 5 D/K

Classroom Competency

Conduct an introductory solar thermal lecture	1	2	3	4	5	D/K
Explain solar thermal design principles to students	1	2	3	4	5	D/K
Organize a field experience for solar thermal system siting	1	2	3	4	5	D/K
Conduct system sizing exercises with students	1	2	3	4	5	D/K
Estimate solar domestic hot water system costs	1	2	3	4	5	D/K
Conduct a basic pressurized system installation	1	2	3	4	5	D/K
Conduct a basic drainback system installation	1	2	3	4	5	D/K
Conduct a basic evacuated tube system installation	1	2	3	4	5	D/K
Demonstrate safety procedures on a mock training roof	1	2	3	4	5	D/K
Facilitate an installation on a mock roof with a student group	1	2	3	4	5	D/K
Solve system design challenges with student groups	1	2	3	4	5	D/K
Conduct testing and troubleshooting protocol with students	1	2	3	4	5	D/K
Outline a training program scope and sequence for your school	1	2	3	4	5	D/K
Design and build a solar thermal training lab	1	2	3	4	5	D/K
Outline a strategy for training program accreditation	1	2	3	4	5	D/K

Overall Program Comments/Areas for Improvement (Use back of sheet if needed):



Pennsylvania State University
Solar Instructor Professional Development Program
Course Evaluation

Please help us improve our instructor training program by completing this form.

Course:	SIPD 452 – Intermediate Solar Thermal Installation and Commissioning
Date:	July 25-29, 2011
Location:	Pennsylvania College of Technology, Williamsport, PA
Instructor:	Vaughan Woodruff, Kennebec Valley Community College

Name of Student: Brian Wilson

Name of Institution: Penn State University (Penn College)

Please indicate your primary motivation(s) for coming to this training (circle):

- Hands-on experience
- Teaching materials
- (•) Training lab designs
- Training program development ideas
- Professional network
- Other:

How did you *FIRST* hear about this training opportunity? (please specify)

Through Penn College

How far did you travel (one way) to get to this course (circle one)?

(0-50 miles)	101-150 miles	201-500 miles
51-100 miles	151-200 miles	More than 500 miles

Would you recommend this training workshop to your colleagues?

Absolutely

Course Evaluation

Please grade the following program characteristics on a scale of A to F (A = Excellent, F = Failing). If you are unsure of the question or answer, or feel that the question does not apply to you, please choose the Not Applicable (N/A) rating.

Location and Facilities

Classroom comfort (size, seating, lighting, etc)	A	B	C	D	F	N/A
Lab facilities (relevance, functional, organized)	A	B	C	D	F	N/A
Facility amenities (bathrooms, break areas)	A	B	C	D	F	N/A

Strengths and suggestions for improvements:

Application Procedure and Logistics

Training application form (understandable, easy)	A	B	C	D	F	N/A
Confirmation email (understandable, informative)	A	B	C	D	F	N/A
Timeliness of correspondence	A	B	C	D	F	N/A
Helpfulness of NMASERC staff	A	B	C	D	F	N/A
Pre-training materials	A	B	C	D	F	N/A

What additional information/materials, if any, should be provided prior to the training?

Strengths and suggestions for improvements:

Instruction and Materials

Training outline (understandable, accurate)	A	B	C	D	F	N/A
Resources (manuals, handouts)	A	B	C	D	F	N/A
Organization (lectures, hands-on)	A	B	C	D	F	N/A
Content (relevant, accurate)	A	B	C	D	F	N/A
Hands-on activities (appropriate, demonstrative)	A	B	C	D	F	N/A
Training discussions (informative, useful)	A	B	C	D	F	N/A
Overall instructor knowledge	A	B	C	D	F	N/A
Overall teaching method	A	B	C	D	F	N/A

Please identify and describe any instructor or content specific comments/suggestions:

Please identify additional content areas/skills for which you would like to receive training and resources:

Strengths and suggestions for improvement:

(Optional) Please provide a quote about your general experience at this training for us to provide to the Department of Energy:

Perception of Competencies

On a scale of 1-5 (1= very confident, 5 = not at all confident), please rate your familiarity with the following topics as a result of taking this course. This first section **(Desired Outcomes)** measures your knowledge gained in the course based upon the desired outcomes. The second section **(Classroom Competency)** asks you to critique your ability to implement what you have learned in a classroom setting.

If you are unsure, or do not understand the question, please chose Don't Know (D/K).

Desired Outcomes

Identify safety hazards and demonstrate appropriate safety practices associated with solar thermal system installation and maintenance.

1 2 3 4 5 D/K

Identify typical solar thermal systems and their components.

1 2 3 4 5 D/K

Review a typical solar thermal system design and determine appropriate layout and configuration.

1 2 3 4 5 D/K

Demonstrate proper site assessment practices by: (a) assessing the suitability of a site; (b) assessing the suitability of a design; (c) identifying proper siting for collectors, storage tank, and components; and (d) providing reasonable performance estimates.

1 2 3 4 5 D/K

Identify and demonstrate best practices for installing collectors and associated racking, as well as best practices for flashing and sealing roof penetrations.

1 2 3 4 5 D/K

Identify proper installation of potable and solar piping in solar thermal systems as dictated by local plumbing and mechanical codes.

1 2 3 4 5 D/K

Demonstrate understanding of solar thermal control systems.

1 2 3 4 5 D/K

Determine solutions for performance problems associated with solar thermal systems and their components.

1 2 3 4 5 D/K

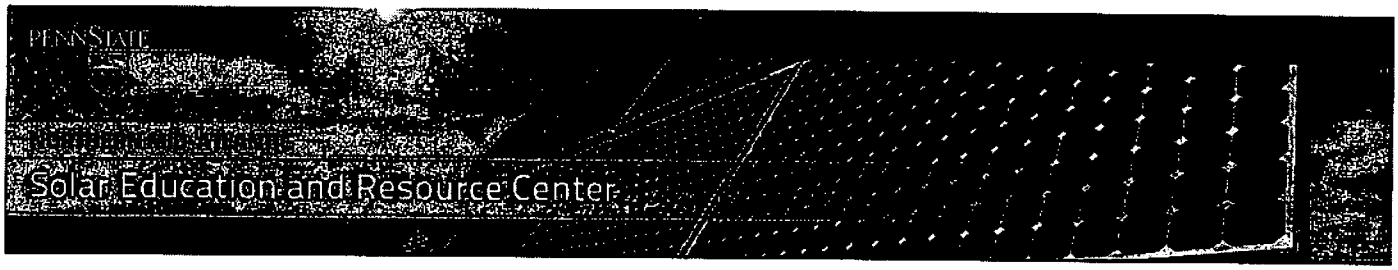
Identify third-party certification organizations and their relevance in the field of solar heating and cooling.

1 2 3 4 5 D/K

Classroom Competency

Conduct an introductory solar thermal lecture	1	2	3	4	5	D/K
Explain solar thermal design principles to students	1	2	3	4	5	D/K
Organize a field experience for solar thermal system siting	1	2	3	4	5	D/K
Conduct system sizing exercises with students	1	2	3	4	5	D/K
Estimate solar domestic hot water system costs	1	2	3	4	5	D/K
Conduct a basic pressurized system installation	1	2	3	4	5	D/K
Conduct a basic drainback system installation	1	2	3	4	5	D/K
Conduct a basic evacuated tube system installation	1	2	3	4	5	D/K
Demonstrate safety procedures on a mock training roof	1	2	3	4	5	D/K
Facilitate an installation on a mock roof with a student group	1	2	3	4	5	D/K
Solve system design challenges with student groups	1	2	3	4	5	D/K
Conduct testing and troubleshooting protocol with students	1	2	3	4	5	D/K
Outline a training program scope and sequence for your school	1	2	3	4	5	D/K
Design and build a solar thermal training lab	1	2	3	4	5	D/K
Outline a strategy for training program accreditation	1	2	3	4	5	D/K

Overall Program Comments/Areas for Improvement (Use back of sheet if needed):



Pennsylvania State University
Solar Instructor Professional Development Program
Course Evaluation

Please help us improve our instructor training program by completing this form.

Course: SIPD 452 – Intermediate Solar Thermal Installation and Commissioning
Date: July 25-29, 2011
Location: Pennsylvania College of Technology, Williamsport, PA
Instructor: Vaughan Woodruff, Kennebec Valley Community College

Name of Student: RAY CONSTANTINE

Name of Institution: SALEM COMMUNITY COLLEGE

Please indicate your primary motivation(s) for coming to this training (circle):

- Hands-on experience
- Teaching materials
- Training lab designs
- Training program development ideas
- Professional network
- Other:

How did you *FIRST* hear about this training opportunity? (please specify)

Through email from ZOHA

How far did you travel (one way) to get to this course (circle one)?

0-50 miles	101-150 miles	201-500 miles
51-100 miles	151-200 miles	More than 500 miles

Would you recommend this training workshop to your colleagues?

ABSOLUTELY !!

Course Evaluation

Please grade the following program characteristics on a scale of A to F (A = Excellent, F = Failing). If you are unsure of the question or answer, or feel that the question does not apply to you, please choose the Not Applicable (N/A) rating.

Location and Facilities

Classroom comfort (size, seating, lighting, etc)	A	B	C	D	F	N/A
Lab facilities (relevance, functional, organized)	A	B	C	D	F	N/A
Facility amenities (bathrooms, break areas)	A	B	C	D	F	N/A

Strengths and suggestions for improvements: GREAT FACILITIES

Application Procedure and Logistics

Training application form (understandable, easy)	A	B	C	D	F	N/A
Confirmation email (understandable, informative)	A	B	C	D	F	N/A
Timeliness of correspondence	A	B	C	D	F	N/A
Helpfulness of NMASERC staff	A	B	C	D	F	N/A
Pre-training materials	A	B	C	D	F	N/A

What additional information/materials, if any, should be provided prior to the training?

Information + preparation requirements were quite helpful

Strengths and suggestions for improvements:

/

Instruction and Materials

Training outline (understandable, accurate)	A	B	C	D	F	N/A
Resources (manuals, handouts)	A	B	C	D	F	N/A
Organization (lectures, hands-on)	A	B	C	D	F	N/A
Content (relevant, accurate)	A	B	C	D	F	N/A
Hands-on activities (appropriate, demonstrative)	A	B	C	D	F	N/A
Training discussions (informative, useful)	A	B	C	D	F	N/A
Overall instructor knowledge	A	B	C	D	F	N/A
Overall teaching method	A	B	C	D	F	N/A

Please identify and describe any instructor or content specific comments/suggestions:

VALERIY was well prepared, organized with well paced lessons.

Please identify additional content areas/skills for which you would like to receive training and resources:

Systems design / commissioning

Strengths and suggestions for improvement:

Great location great staff

(Optional) Please provide a quote about your general experience at this training for us to provide to the Department of Energy:

Well designed program with content and hands on experiences that can be used in the deployment of our solar program at SCC.

Perception of Competencies

On a scale of 1-5 (1= very confident, 5 = not at all confident), please rate your familiarity with the following topics as a result of taking this course. This first section **(Desired Outcomes)** measures your knowledge gained in the course based upon the desired outcomes. The second section **(Classroom Competency)** asks you to critique your ability to implement what you have learned in a classroom setting.

If you are unsure, or do not understand the question, please chose Don't Know (D/K).

Desired Outcomes

Identify safety hazards and demonstrate appropriate safety practices associated with solar thermal system installation and maintenance.

(1) 2 3 4 5 D/K

Identify typical solar thermal systems and their components.

(1) 2 3 4 5 D/K

Review a typical solar thermal system design and determine appropriate layout and configuration.

(1) 2 3 4 5 D/K

Demonstrate proper site assessment practices by: (a) assessing the suitability of a site; (b) assessing the suitability of a design; (c) identifying proper siting for collectors, storage tank, and components; and (d) providing reasonable performance estimates.

(1) 2 3 4 5 D/K

Identify and demonstrate best practices for installing collectors and associated racking, as well as best practices for flashing and sealing roof penetrations.

1 (2) 3 4 5 D/K

Identify proper installation of potable and solar piping in solar thermal systems as dictated by local plumbing and mechanical codes.

1 2 3 4 5 D/K

Demonstrate understanding of solar thermal control systems.

1 2 3 4 5 D/K

Determine solutions for performance problems associated with solar thermal systems and their components.

1 2 3 4 5 D/K

Identify third-party certification organizations and their relevance in the field of solar heating and cooling.

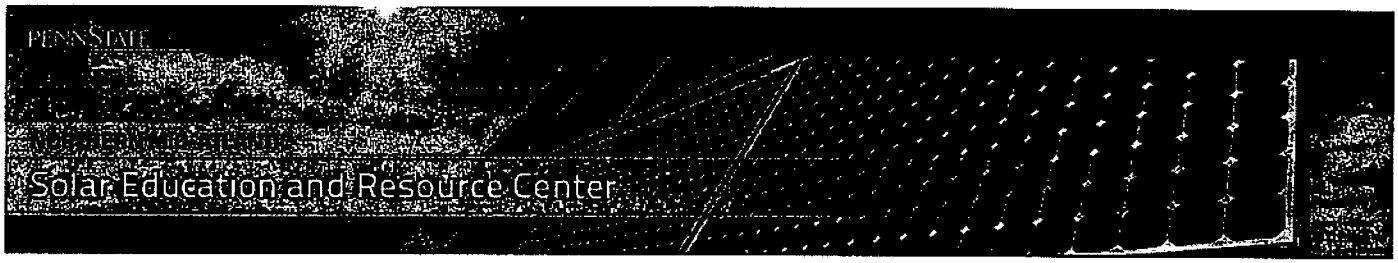
1 2 3 4 5 D/K

Classroom Competency

Conduct an introductory solar thermal lecture	1	2	3	4	5	D/K
Explain solar thermal design principles to students	1	2	3	4	5	D/K
Organize a field experience for solar thermal system siting	1	2	3	4	5	D/K
Conduct system sizing exercises with students	1	2	3	4	5	D/K
Estimate solar domestic hot water system costs	1	2	3	4	5	D/K
Conduct a basic pressurized system installation	1	2	3	4	5	D/K
Conduct a basic drainback system installation	1	2	3	4	5	D/K
Conduct a basic evacuated tube system installation	1	2	3	4	5	D/K
Demonstrate safety procedures on a mock training roof	1	2	3	4	5	D/K
Facilitate an installation on a mock roof with a student group	1	2	3	4	5	D/K
Solve system design challenges with student groups	1	2	3	4	5	D/K
Conduct testing and troubleshooting protocol with students	1	2	3	4	5	D/K
Outline a training program scope and sequence for your school	1	2	3	4	5	D/K
Design and build a solar thermal training lab	1	2	3	4	5	D/K
Outline a strategy for training program accreditation	1	2	3	4	5	D/K

Overall Program Comments/Areas for Improvement (Use back of sheet if needed):

Great program. I appreciate all of the hard work and organization provided by the SERC staff. Especially the harder on lab components



Pennsylvania State University
Solar Instructor Professional Development Program
Course Evaluation

Please help us improve our instructor training program by completing this form.

Course: SIPD 452 – Intermediate Solar Thermal Installation and Commissioning
Date: July 25-29, 2011
Location: Pennsylvania College of Technology, Williamsport, PA
Instructor: Vaughan Woodruff, Kennebec Valley Community College

Name of Student: Kairi Pumell

Name of Institution: Montgomery County Community College

Please indicate your primary motivation(s) for coming to this training (circle):

- Hands-on experience
- Teaching materials
- Training lab designs
- Training program development ideas
- Professional network
- Other:

How did you *FIRST* hear about this training opportunity? (please specify)

From Zoho via e-mail

How far did you travel (one way) to get to this course (circle one)?

0-50 miles	101-150 miles	201-500 miles
51-100 miles	151-200 miles	More than 500 miles

Would you recommend this training workshop to your colleagues?

Yes

Course Evaluation

Please grade the following program characteristics on a scale of A to F (A = Excellent, F = Failing). If you are unsure of the question or answer, or feel that the question does not apply to you, please choose the Not Applicable (N/A) rating.

Location and Facilities

Classroom comfort (size, seating, lighting, etc)	A	B	C	D	F	N/A
Lab facilities (relevance, functional, organized)	A	B	C	D	F	N/A
Facility amenities (bathrooms, break areas)	A	B	C	D	F	N/A

Strengths and suggestions for improvements: None

Application Procedure and Logistics

Training application form (understandable, easy)	A	B	C	D	F	N/A
Confirmation email (understandable, informative)	A	B	C	D	F	N/A
Timeliness of correspondence	A	B	C	D	F	N/A
Helpfulness of NMASERC staff	A	B	C	D	F	N/A
Pre-training materials	A	B	C	D	F	N/A

What additional information/materials, if any, should be provided prior to the training?

Examples of case studies of Solar Thermal Installs because it is not that large in the market

Strengths and suggestions for improvements:

A layout of how the class was going to run. I did not know that there would be so much hands on, but I enjoyed it very much

Instruction and Materials

Training outline (understandable, accurate)	A	B	C	D	F	N/A
Resources (manuals, handouts)	A	B	C	D	F	N/A
Organization (lectures, hands-on)	A	B	C	D	F	N/A
Content (relevant, accurate)	A	B	C	D	F	N/A
Hands-on activities (appropriate, demonstrative)	A	B	C	D	F	N/A
Training discussions (informative, useful)	A	B	C	D	F	N/A
Overall instructor knowledge	A	B	C	D	F	N/A
Overall teaching method	A	B	C	D	F	N/A

Please identify and describe any instructor or content specific comments/suggestions:

Vaughn did a great job. It was very difficult to get this information thru to us in only 40 hours

Please identify additional content areas/skills for which you would like to receive training and resources:

Calculations and ways to handle complex situations (may need to be an additional course)

Strengths and suggestions for improvement:

I think we should have had a manual of the course slides. The screen went fast but was good.

(Optional) Please provide a quote about your general experience at this training for us to provide to the Department of Energy:

Perception of Competencies

On a scale of 1-5 (1= very confident, 5 = not at all confident), please rate your familiarity with the following topics as a result of taking this course. This first section **(Desired Outcomes)** measures your knowledge gained in the course based upon the desired outcomes. The second section **(Classroom Competency)** asks you to critique your ability to implement what you have learned in a classroom setting.

If you are unsure, or do not understand the question, please chose Don't Know (D/K).

Desired Outcomes

Identify safety hazards and demonstrate appropriate safety practices associated with solar thermal system installation and maintenance.

1 (2) 3 4 5 D/K

Identify typical solar thermal systems and their components.

1 2 (3) 4 5 D/K

Review a typical solar thermal system design and determine appropriate layout and configuration.

1 2 (3) 4 5 D/K

Demonstrate proper site assessment practices by: (a) assessing the suitability of a site; (b) assessing the suitability of a design; (c) identifying proper siting for collectors, storage tank, and components; and (d) providing reasonable performance estimates.

1 (2) 3 4 5 D/K

Identify and demonstrate best practices for installing collectors and associated racking, as well as best practices for flashing and sealing roof penetrations.

(1) 2 3 4 5 D/K

Identify proper installation of potable and solar piping in solar thermal systems as dictated by local plumbing and mechanical codes.

1 2 3 4 5 D/K

Demonstrate understanding of solar thermal control systems.

1 2 3 4 5 D/K

Determine solutions for performance problems associated with solar thermal systems and their components.

1 2 3 4 5 D/K

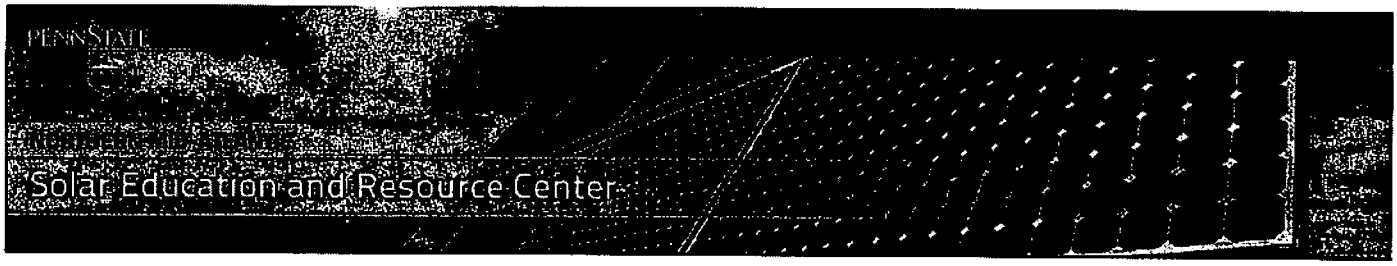
Identify third-party certification organizations and their relevance in the field of solar heating and cooling.

1 2 3 4 5 D/K

Classroom Competency

Conduct an introductory solar thermal lecture	1	2	3	4	5	D/K
Explain solar thermal design principles to students	1	2	3	4	5	D/K
Organize a field experience for solar thermal system siting	1	2	3	4	5	D/K
Conduct system sizing exercises with students	1	2	3	4	5	D/K
Estimate solar domestic hot water system costs	1	2	3	4	5	D/K
Conduct a basic pressurized system installation	1	2	3	4	5	D/K
Conduct a basic drainback system installation	1	2	3	4	5	D/K
Conduct a basic evacuated tube system installation	1	2	3	4	5	D/K
Demonstrate safety procedures on a mock training roof	1	2	3	4	5	D/K
Facilitate an installation on a mock roof with a student group	1	2	3	4	5	D/K
Solve system design challenges with student groups	1	2	3	4	5	D/K
Conduct testing and troubleshooting protocol with students	1	2	3	4	5	D/K
Outline a training program scope and sequence for your school	1	2	3	4	5	D/K
Design and build a solar thermal training lab	1	2	3	4	5	D/K
Outline a strategy for training program accreditation	1	2	3	4	5	D/K

Overall Program Comments/Areas for Improvement (Use back of sheet if needed):



Pennsylvania State University
Solar Instructor Professional Development Program
Course Evaluation

Please help us improve our instructor training program by completing this form.

Course: SIPD 452 – Intermediate Solar Thermal Installation and Commissioning
Date: July 25-29, 2011
Location: Pennsylvania College of Technology, Williamsport, PA
Instructor: Vaughan Woodruff, Kennebec Valley Community College

Name of Student: THOMAS CLEARY

Name of Institution: PENN STATE SCHUYLKILL

Please indicate your primary motivation(s) for coming to this training (circle):

- (•) Hands-on experience
- (•) Teaching materials
- Training lab designs
- Training program development ideas
- Professional network
- Other:

How did you *FIRST* hear about this training opportunity? (please specify)

I heard about it at the PV training program in Phila.

How far did you travel (one way) to get to this course (circle one)?

0-50 miles	(101-150 miles)	201-500 miles
51-100 miles	151-200 miles	More than 500 miles

Would you recommend this training workshop to your colleagues?

Absolutely!

Course Evaluation

Please grade the following program characteristics on a scale of A to F (A = Excellent, F = Failing). If you are unsure of the question or answer, or feel that the question does not apply to you, please choose the Not Applicable (N/A) rating.

Location and Facilities

Classroom comfort (size, seating, lighting, etc)	A	B	C	D	F	N/A
Lab facilities (relevance, functional, organized)	A	B	C	D	F	N/A
Facility amenities (bathrooms, break areas)	A	B	C	D	F	N/A

Strengths and suggestions for improvements:

Application Procedure and Logistics

Training application form (understandable, easy)	A	B	C	D	F	N/A
Confirmation email (understandable, informative)	A	B	C	D	F	N/A
Timeliness of correspondence	A	B	C	D	F	N/A
Helpfulness of NMASERC staff	A	B	C	D	F	N/A
Pre-training materials	A	B	C	D	F	N/A

What additional information/materials, if any, should be provided prior to the training?

Strengths and suggestions for improvements:

Instruction and Materials

Training outline (understandable, accurate)	A	B	C	D	F	N/A
Resources (manuals, handouts)	A	B	C	D	F	N/A
Organization (lectures, hands-on)	A	B	C	D	F	N/A
Content (relevant, accurate)	A	B	C	D	F	N/A
Hands-on activities (appropriate, demonstrative)	A	B	C	D	F	N/A
Training discussions (informative, useful)	A	B	C	D	F	N/A
Overall instructor knowledge	A	B	C	D	F	N/A
Overall teaching method	A	B	C	D	F	N/A

Please identify and describe any instructor or content specific comments/suggestions:

Please identify additional content areas/skills for which you would like to receive training and resources:

Strengths and suggestions for improvement: AS AN educator, I know the need for frequent breaks during lecture sessions. Some of the lectures were too long between breaks

(Optional) Please provide a quote about your general experience at this training for us to provide to the Department of Energy: IT IS AN AREA THAT IS very new and needs more trained professionals

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Perception of Competencies

On a scale of 1-5 (1= very confident, 5 = not at all confident), please rate your familiarity with the following topics as a result of taking this course. This first section **(Desired Outcomes)** measures your knowledge gained in the course based upon the desired outcomes. The second section **(Classroom Competency)** asks you to critique your ability to implement what you have learned in a classroom setting.

If you are unsure, or do not understand the question, please chose Don't Know (D/K).

Desired Outcomes

Identify safety hazards and demonstrate appropriate safety practices associated with solar thermal system installation and maintenance.

1 (2) 3 4 5 D/K

Identify typical solar thermal systems and their components.

(1) 2 3 4 5 D/K

Review a typical solar thermal system design and determine appropriate layout and configuration.

(1) 2 3 4 5 D/K

Demonstrate proper site assessment practices by: (a) assessing the suitability of a site; (b) assessing the suitability of a design; (c) identifying proper siting for collectors, storage tank, and components; and (d) providing reasonable performance estimates.

(1) 2 3 4 5 D/K

Identify and demonstrate best practices for installing collectors and associated racking, as well as best practices for flashing and sealing roof penetrations.

1 (2) 3 4 5 D/K

Identify proper installation of potable and solar piping in solar thermal systems as dictated by local plumbing and mechanical codes.

1 2 3 4 5 D/K

Demonstrate understanding of solar thermal control systems.

1 2 3 4 5 D/K

Determine solutions for performance problems associated with solar thermal systems and their components.

1 2 3 4 5 D/K

Identify third-party certification organizations and their relevance in the field of solar heating and cooling.

1 2 3 4 5 D/K

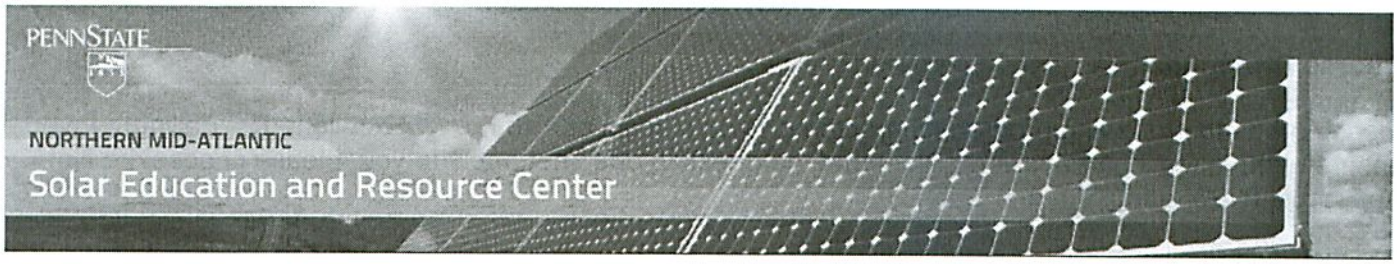
Classroom Competency

Conduct an introductory solar thermal lecture	1	2	3	4	5	D/K
Explain solar thermal design principles to students	1	2	3	4	5	D/K
Organize a field experience for solar thermal system siting	1	2	3	4	5	D/K
Conduct system sizing exercises with students	1	2	3	4	5	D/K
Estimate solar domestic hot water system costs	1	2	3	4	5	D/K
Conduct a basic pressurized system installation	1	2	3	4	5	D/K
Conduct a basic drainback system installation	1	2	3	4	5	D/K
Conduct a basic evacuated tube system installation	1	2	3	4	5	D/K
Demonstrate safety procedures on a mock training roof	1	2	3	4	5	D/K
Facilitate an installation on a mock roof with a student group	1	2	3	4	5	D/K
Solve system design challenges with student groups	1	2	3	4	5	D/K
Conduct testing and troubleshooting protocol with students	1	2	3	4	5	D/K
Outline a training program scope and sequence for your school	1	2	3	4	5	D/K
Design and build a solar thermal training lab	1	2	3	4	5	D/K
Outline a strategy for training program accreditation	1	2	3	4	5	D/K

Overall Program Comments/Areas for Improvement (Use back of sheet if needed):

on-line pre-training had some glitches. needs some improvement.

Overall good job - well worth the time. Instructor is great.



Pennsylvania State University
Solar Instructor Professional Development Program
Course Evaluation

Please help us improve our instructor training program by completing this form.

Course: SIPD 452 – Intermediate Solar Thermal Installation and Commissioning
Date: July 25-29, 2011
Location: Pennsylvania College of Technology, Williamsport, PA
Instructor: Vaughan Woodruff, Kennebec Valley Community College

Name of Student: John (Jack) Wilson

Name of Institution: WTC Penn College

Please indicate your primary motivation(s) for coming to this training (circle):

- (•) Hands-on experience
- (•) Teaching materials
- (•) Training lab designs
- (•) Training program development ideas
- (•) Professional network
- (•) Other: All of the above

How did you *FIRST* hear about this training opportunity? (please specify)

Penn State

How far did you travel (one way) to get to this course (circle one)?

(0-50 miles)	101-150 miles	201-500 miles
51-100 miles	151-200 miles	More than 500 miles

Would you recommend this training workshop to your colleagues? yes

Course Evaluation

Please grade the following program characteristics on a scale of A to F (A = Excellent, F = Failing). If you are unsure of the question or answer, or feel that the question does not apply to you, please choose the Not Applicable (N/A) rating.

Location and Facilities

Classroom comfort (size, seating, lighting, etc)	A	B	C	D	F	N/A
Lab facilities (relevance, functional, organized)	A	B	C	D	F	N/A
Facility amenities (bathrooms, break areas)	A	B	C	D	F	N/A

Strengths and suggestions for improvements:

Application Procedure and Logistics

Training application form (understandable, easy)	A	B	C	D	F	N/A
Confirmation email (understandable, informative)	A	B	C	D	F	N/A
Timeliness of correspondence	A	B	C	D	F	N/A
Helpfulness of NMASERC staff	A	B	C	D	F	N/A
Pre-training materials	A	B	C	D	F	N/A

What additional information/materials, if any, should be provided prior to the training? None

Strengths and suggestions for improvements: instructor Knowledge was a great asset

Instruction and Materials

Training outline (understandable, accurate)	A	B	C	D	F	N/A
Resources (manuals, handouts)	A	B	C	D	F	N/A
Organization (lectures, hands-on)	A	B	C	D	F	N/A
Content (relevant, accurate)	A	B	C	D	F	N/A
Hands-on activities (appropriate, demonstrative)	A	B	C	D	F	N/A
Training discussions (informative, useful)	A	B	C	D	F	N/A
Overall instructor knowledge	A	B	C	D	F	N/A
Overall teaching method	A	B	C	D	F	N/A

Please identify and describe any instructor or content specific comments/suggestions:

Please identify additional content areas/skills for which you would like to receive training and resources: None Right Now

Strengths and suggestions for improvement: It was a lot of information in a 1 week time frame Possibly lengthen class.

(Optional) Please provide a quote about your general experience at this training for us to provide to the Department of Energy: I thought the training was very comprehensive and professionally delivered.

Perception of Competencies

On a scale of 1-5 (1= very confident, 5 = not at all confident), please rate your familiarity with the following topics as a result of taking this course. This first section **(Desired Outcomes)** measures your knowledge gained in the course based upon the desired outcomes. The second section **(Classroom Competency)** asks you to critique your ability to implement what you have learned in a classroom setting.

If you are unsure, or do not understand the question, please chose Don't Know (D/K).

Desired Outcomes

Identify safety hazards and demonstrate appropriate safety practices associated with solar thermal system installation and maintenance.

1 2 3 4 5 D/K

Identify typical solar thermal systems and their components.

1 2 3 4 5 D/K

Review a typical solar thermal system design and determine appropriate layout and configuration.

1 2 3 4 5 D/K

Demonstrate proper site assessment practices by: (a) assessing the suitability of a site; (b) assessing the suitability of a design; (c) identifying proper siting for collectors, storage tank, and components; and (d) providing reasonable performance estimates.

1 2 3 4 5 D/K

Identify and demonstrate best practices for installing collectors and associated racking, as well as best practices for flashing and sealing roof penetrations.

1 2 3 4 5 D/K

Identify proper installation of potable and solar piping in solar thermal systems as dictated by local plumbing and mechanical codes.

1 2 3 4 5 D/K

Demonstrate understanding of solar thermal control systems.

1 2 3 4 5 D/K

Determine solutions for performance problems associated with solar thermal systems and their components.

1 2 3 4 5 D/K

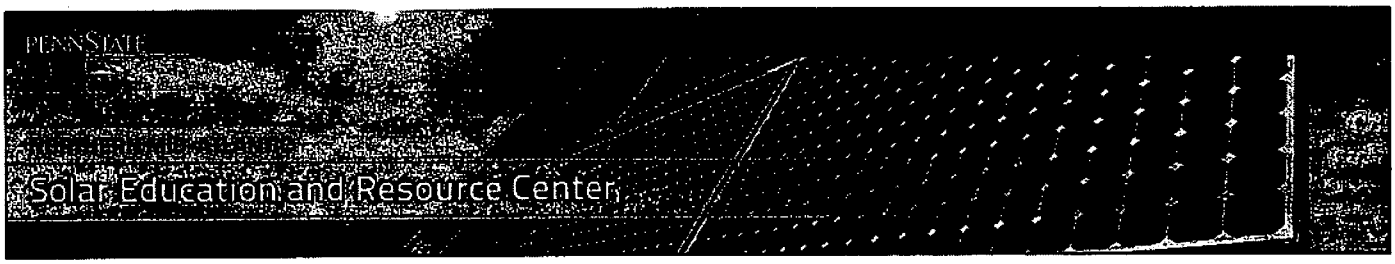
Identify third-party certification organizations and their relevance in the field of solar heating and cooling.

1 2 3 4 5 D/K

Classroom Competency

Conduct an introductory solar thermal lecture	1	2	3	4	5	D/K
Explain solar thermal design principles to students	1	2	3	4	5	D/K
Organize a field experience for solar thermal system siting	1	2	3	4	5	D/K
Conduct system sizing exercises with students	1	2	3	4	5	D/K
Estimate solar domestic hot water system costs	1	2	3	4	5	D/K
Conduct a basic pressurized system installation	1	2	3	4	5	D/K
Conduct a basic drainback system installation	1	2	3	4	5	D/K
Conduct a basic evacuated tube system installation	1	2	3	4	5	D/K
Demonstrate safety procedures on a mock training roof	1	2	3	4	5	D/K
Facilitate an installation on a mock roof with a student group	1	2	3	4	5	D/K
Solve system design challenges with student groups	1	2	3	4	5	D/K
Conduct testing and troubleshooting protocol with students	1	2	3	4	5	D/K
Outline a training program scope and sequence for your school	1	2	3	4	5	D/K
Design and build a solar thermal training lab	1	2	3	4	5	D/K
Outline a strategy for training program accreditation	1	2	3	4	5	D/K

Overall Program Comments/Areas for Improvement (Use back of sheet if needed):



Pennsylvania State University
Solar Instructor Professional Development Program
Course Evaluation

Please help us improve our instructor training program by completing this form.

Course: SIPD 452 – Intermediate Solar Thermal Installation and Commissioning
Date: July 25-29, 2011
Location: Pennsylvania College of Technology, Williamsport, PA
Instructor: Vaughan Woodruff, Kennebec Valley Community College

Name of Student: Gary Thompson

Name of Institution: WVU @ Parkersburg

Please indicate your primary motivation(s) for coming to this training (circle):

- X Hands-on experience
- X Teaching materials
- X Training lab designs
- X Training program development ideas
- X Professional network
- Other:

How did you *FIRST* hear about this training opportunity? (please specify)

Penn State Website

How far did you travel (one way) to get to this course (circle one)?

0-50 miles	101-150 miles	201-500 miles
51-100 miles	151-200 miles	More than 500 miles

Would you recommend this training workshop to your colleagues?

Yes

Course Evaluation

Please grade the following program characteristics on a scale of A to F (A = Excellent, F = Failing). If you are unsure of the question or answer, or feel that the question does not apply to you, please choose the Not Applicable (N/A) rating.

Location and Facilities

Classroom comfort (size, seating, lighting, etc)	A	B	C	D	F	N/A
Lab facilities (relevance, functional, organized)	A	B	C	D	F	N/A
Facility amenities (bathrooms, break areas)	A	B	C	D	F	N/A

Strengths and suggestions for improvements:

Application Procedure and Logistics

Training application form (understandable, easy)	A	B	C	D	F	N/A
Confirmation email (understandable, informative)	A	B	C	D	F	N/A
Timeliness of correspondence	A	B	C	D	F	N/A
Helpfulness of NMASERC staff	A	B	C	D	F	N/A
Pre-training materials	A	B	C	D	F	N/A

What additional information/materials, if any, should be provided prior to the training?

Strengths and suggestions for improvements:

Instruction and Materials

Training outline (understandable, accurate)	A	B	C	D	F	N/A
Resources (manuals, handouts)	A	B	C	D	F	N/A
Organization (lectures, hands-on)	A	B	C	D	F	N/A
Content (relevant, accurate)	A	B	C	D	F	N/A
Hands-on activities (appropriate, demonstrative)	A	B	C	D	F	N/A
Training discussions (informative, useful)	A	B	C	D	F	N/A
Overall instructor knowledge	A	B	C	D	F	N/A
Overall teaching method	A	B	C	D	F	N/A

Identify proper installation of potable and solar piping in solar thermal systems as dictated by local plumbing and mechanical codes.

1 2 3 4 5 D/K

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1 2 3 4 5 D/K

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Design and build a solar thermal training lab	1	2	3	4	5	D/K
Outline a strategy for training program accreditation	1	2	3	4	5	D/K

Overall Program Comments/Areas for Improvement (Use back of sheet if needed):

Please identify and describe any instructor or content specific comments/suggestions:

Excellent teaching style

Please identify additional content areas/skills for which you would like to receive training and resources:

Policy + Incentives SHW + PV

Strengths and suggestions for improvement:

(Optional) Please provide a quote about your general experience at this training for us to provide to the Department of Energy:

I will be able to use Resources & methods obtained in this class directly in my Solar Hot Water teaching activities.

Perception of Competencies

On a scale of 1-5 (1= very confident, 5 = not at all confident), please rate your familiarity with the following topics as a result of taking this course. This first section **(Desired Outcomes)** measures your knowledge gained in the course based upon the desired outcomes. The second section **(Classroom Competency)** asks you to critique your ability to implement what you have learned in a classroom setting.

If you are unsure, or do not understand the question, please chose Don't Know (D/K).

Desired Outcomes

Identify safety hazards and demonstrate appropriate safety practices associated with solar thermal system installation and maintenance.

1 2 3 4 5 D/K

Identify typical solar thermal systems and their components.

1 2 3 4 5 D/K

Review a typical solar thermal system design and determine appropriate layout and configuration.

1 2 3 4 5 D/K

Demonstrate proper site assessment practices by: (a) assessing the suitability of a site; (b) assessing the suitability of a design; (c) identifying proper siting for collectors, storage tank, and components; and (d) providing reasonable performance estimates.

1 2 3 4 5 D/K

Identify and demonstrate best practices for installing collectors and associated racking, as well as best practices for flashing and sealing roof penetrations.

1 2 3 4 5 D/K