# MN Transfer Curriculum Area(s) (Leave blank if not applicable)

Goal 1: Communication: _____ by meeting the following competencies:

Goal 2: Critical Thinking: _____ by meeting the following competencies:

Goal 3: Natural Sciences: _____ by meeting the following competencies:

Goal 4: Mathematics/Logical Reasoning: _____ by meeting the following competencies:

Goal 5: History and the Social and Behavioral Sciences: _____ by meeting the following competencies:

Goal 6: The Humanities and Fine Arts: _____ by meeting the following competencies:

Goal 7: Human Diversity: _____ by meeting the following competencies:

Goal 8: Global Perspective: _____ by meeting the following competencies:

Goal 9: Ethical and Civic Responsibility: _____ by meeting the following competencies:

Goal 10: People and the Environment: _____ by meeting the following competencies:

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## Topics to be Covered

- Solar assessment and design of an array.
- Building and electrical permit process procedures.
- Full site assessment design tools.

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## Student Learning Outcomes

- Explain strengths and weaknesses of solar photovoltaic and thermal panels in different orientations.
- Describe factors that affect the efficiency of both thermal and electric solar systems.
- Explain strengths and limitations of the solar resource.
Calculate cost, simple payback, return on investment and cash flow for solar energy systems.

Estimate the installed cost of a solar electric or thermal system, including materials, labor, subcontractors and permits when given a design.

Identify roof attachment hardware and their applications and limitations.

Write solar site assessments including costs, benefits, and customer goals.

Estimate the installed cost of a solar electric or thermal system, including materials, labor, subcontractors and permits when given a design.

Model solar space heating and hot water output.

Is this course part of a transfer pathway:  Yes ☐   No ✗

*If yes, please list the competencies below

Revised Date: 2/2020