SOLR1101 - Basic Photovoltaics

Credits:	2 (2/0/0)
Description:	This course addresses the basics of solar electricity. Participants learn how photovoltaic (PV) systems work, compare and contrast different PV system types, identify necessary system components, and understand the best applications for (and limitations of) each system type. Other discussion topics include energy efficiency strategies, researching a site's solar potential, and where to find information about PV costs and incentive programs.
Prerequisites:	
Corequisites:	
Pre/Corequisites*:	
Competencies:	1. Explain the flow of electricity and the difference between AC and DC. 2. Calculate electrical values using Ohm's Law and power equations. 3. Interpret charges and information on an electric bill. 4. Implement energy conservation and efficiency strategies. 5. Define photovoltaics and explain how a PV cell works. 6. Interpret PV module voltage, current and power ratings (based on standard test conditions). 7. Compare and contrast PV system types (grid-tied, stand-alone, multimode). 8. Describe the best applications for (and limitations of) each system type. 9. Identify necessary components for each PV system type. 10. Calculate a site's solar resource potential based on latitude, sun path charts and obstruction data available. 11. Describe how to optimize energy production with array azimuth and tilt angles. 12. Identify mounting options for PV systems and perform basic PV system sizing calculations using the PVWatts Calculator and best practices. 13. Describe utility net metering policies and how they can differ. 14. Research current costs and financial incentives for PV systems.
MnTC goal areas:	None

**Can be taking as a Prerequisite or Corequisite.*

© 2026 Minnesota State Community and Technical College.
We reserve the right to periodically update information without notice.
The information in this publication should not be regarded as contractual in nature.