

# NABCEP Entry Level Certificate of Knowledge Preparatory Material

In order to help facilitate the Entry Level Certificate of Knowledge learning objectives as presented by NABCEP, the following information should be reviewed prior to attending class. The information has been referenced from the *Photovoltaic Systems* textbook ([www.go2atp.com](http://www.go2atp.com)) that is required for the class.

The time spent in class will reinforce and build upon the concepts and terminology presented in the *Photovoltaic Systems* textbook. It is recommended that the participants read Chapter 1 and review the textbook and answer as many of the chapter review questions as possible. There are multiple video clips on the CD included with the textbook that are useful for students to review as well.

Prior to the class the students should be able to define the following vocabulary terms:

- Irradiance
- Azimuth
- Irradiation
- Standard Test Conditions
- Bypass Diode
- Peak Sun Hours
- Utility Interactive Inverter
- Photovoltaic Effect
- Pulse width modulation
- Maximum Power Point Tracker
- State of Charge

Prior to the class the students should be able to explain the following fundamental concepts:

- The major points on an I-V curve
- How to compute for magnetic declination
- The impact of placing PV modules in series and parallel on the overall voltage and current output
- The major differences between Direct Coupled PV systems, Stand Alone PV systems and Utility Interactive PV Systems
- The sun's relative position in the sky for various times of the year
- Common features and types of charge controllers
- The purpose of bypass diodes within PV modules
- The different PV technologies currently available
- The purpose of the P-N junction