

### Photovoltaic Devices- Solar Cell

1. Explain the fundamental working principle of a solar cell including device physics, I-V characteristics, and materials & efficiency.
2. Discuss briefly the following PV cell chemistries and the main differences in performance:
  - a. Si
  - b. Thin film single junction
  - c. Thin film multijunction
  - d. Multijunction
3. Design the power system for the Cruiser to participate in the [World Solar Challenge](https://www.worldsolarchallenge.org): <https://www.worldsolarchallenge.org>, based on the solar collector and energy storage regulations:  
[https://www.worldsolarchallenge.org/files/2272\\_2019\\_bwsc\\_regulations\\_release\\_version\\_3.pdf](https://www.worldsolarchallenge.org/files/2272_2019_bwsc_regulations_release_version_3.pdf) given in sections 2.4 and 2.5.