

Graduation Design Project Proposal Form

Project # E10

Project Title: Enhancement of a large-scale PV Farm based on Solar Radiation Models
Professor(s) Name(s): Dr. Faris Ebrahim Alfaris
Number of Students: Two
Students Qualifications Knowledge on power systems and basic knowledge on MATLAB.
Statement of Problem The project aims to improve the performance (increase the generated power) of a large-scale solar farm based on the sun radiation models. This helps in eliminating the sun traction controllers and enhance the quality of the generated energy.
Brief Description of the Project Students will need to obtain a solar radiation model that is suitable for Saudi Arabia region. Then they have to design a supervisory control system, to manage the solar panels in an actual large-scale solar farm. The intended goal is to catch the highest possible solar radiation each single minute throughout the daytime.
Objectives (1) Improve the efficiency of an existed large-scale solar farm, (2) minimize the cost of solar traction systems, and (3) Ability of estimating the future production of the PV farm generated energy.
Technical Approach and Expected Deliverables With the knowledge of solar radiation models, students must figure out the proper approach to manage PV panels (at an actual large-scale PV farm) to improve the solar system efficiency.