

# International Summer School Manipal University Jaipur [ISSMUJ]-2022

[Hybrid Mode]

## Course Overview

**Name of Course: Solar Photovoltaic Systems.**

Name of instructors:	1. Prof (Dr.) Amit Soni, Professor EE, Manipal University Jaipur 2. Mr. Mahipal Bukya, Assistant Professor of Electrical Engineering, Manipal Academy of Higher Education (MAHE), Bengaluru
Session:	June-July 2022
Language of instruction:	English
Number of contact hours:	36
Credit awarded:	03

### Objective of Course

- Understand the concept of renewable energy sources and basics of solar cells.
- To provide the students a deep insight in to the power electronics for photovoltaics and design, operation and installation of solar photovoltaic systems.
- Develop an innovative O&M solution for Solar Plant and describe End Life Cycle Recycling of PV System.

### Syllabus

Introduction Non-renewable and Renewable Energy sources; Solar Photovoltaic Cell Basics; Photovoltaic Modules; Introduction to Batteries; Power Electronics for Photovoltaic; Complete Photovoltaic Systems; Solar PV System Design and Integration; Best practices in operation and maintenance; Application, End-of-Life Management of Photovoltaic Modules, future trend and Recycling Technologies.

### Organization of course

Total contact hrs 36		
1st week:	6 hrs (classes)	6 hrs (self-study/ discussion/tutorial)
2nd week:	6 hrs (classes)	6 hrs (mid term exam/assessment/discussion/tutorial)
3rd week:	6 hrs (classes)	6 hrs (end term exam/presentation/report)

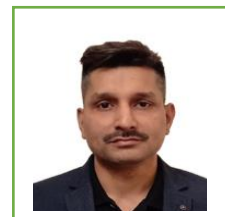
**Mode of lectures:** Offline Lectures; Tutorial Sessions; Discussion.

### Course Plan

Lecture no.	Topic	Lecture mode	Instructor(s)
L: 1-6	Introduction Non-renewable and Renewable Energy sources; Solar Photovoltaic Cell Basics.	Offline Lectures; Tutorial Sessions; Discussion	Dr. Amit Soni Mr. Mahipal Bukya
L: 7-12	Photovoltaic Modules; Introduction to Batteries; Power Electronics for Photovoltaic.	Offline Lectures; Tutorial Sessions; Discussion	Dr. Amit Soni Mr. Mahipal Bukya
L: 13-18	Complete Photovoltaic Systems; Solar PV System Design and Integration.	Offline Lectures; Tutorial Sessions; Discussion	Dr. Amit Soni Mr. Mahipal Bukya
L: 19-24	Best practices in operation and maintenance.	Offline Lectures; Tutorial Sessions; Discussion	Dr. Amit Soni Mr. Mahipal Bukya
L: 25-30	Application, End-of-Life Management of Photovoltaic Modules, future trend, and Recycling Technologies.	Offline Lectures; Tutorial Sessions; Discussion	Dr. Amit Soni Mr. Mahipal Bukya
L: 31-36	Project Presentation; Report/Paper Writing; Evaluation.	Tutorial Sessions; Discussion	Dr. Amit Soni Mr. Mahipal Bukya

### Brief profile of the instructors

**Dr. Amit Soni**, Professor, Director (International Collaboration)  
Electrical Engineering, MUJ  
B.Tech. M. S. Bidve Engineering College, Latur (Maharashtra),  
M.Tech. (Electrical Engineering) – MNIT Jaipur,  
Ph.D. (Electrical Engineering) – MNIT Jaipur  
Academic & Research Experience: 21 Years



**Mr. Mahipal Bukya**, Assistant Professor (Senior-Scale),  
IQAC - Coordinator, MIT Bengaluru  
Department of Electrical and Electronics Engineering,  
Manipal Institute of Technology, Bengaluru, (MAHE Bengaluru Campus),  
B.Tech. (Electrical and Electronics Engineering) – JNTU(BVRIT), Hyderabad,  
M.Tech. (Electrical Engineering) – IISc, Bengaluru  
Ph.D\*. (Electrical Engineering) – NIT Jaipur  
Academic & Research Experience: 10 Years

