

Template for Faculty Data

Faculty Name ANUJ RAWAT



Designation: ASSISTANT PROFESSOR (CONTRACT)

Employee ID: employee ID of the faculty

Qualification: M.TECH, PHD Pursuing

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1. About Faculty

Areas of Research: Renewable Energy systems, Solar Photo voltaic cell, control system, process control and optimization algorithm.

2. Educational Qualification (As given in biodata uploaded on website)

S. No.	Degree	Specialization	Year	University/Board
1	Phd	Renewable Energy systems	2017 to till now	NSIT (University of Delhi)
2	M tech	Process control	2016	NSIT (University of Delhi)
3	B.E.	Electronics & Instrumentation	2010	S.G.S.I.T.S (R.G.P.V.)
4	12 th	Science	2006	M.P. Board
6	10 th	Science	2004	M.P. Board

3. Work Experience

S. No.	Designation	Department	Employer Name	Duration of Employment
1	Teaching research	Instrumentation and Control	Netaji Subhas Institute of	2017- 2020

	Fellow		Technology, New Delhi	
2	System Engineering Trainee	Software Engg	INFOSYS	Jan 2017-Aug 2017
3	Assistant Manager	Electrical Department	Vedanta Aluminium Ltd	2010- 2012

4. Research Detail

Research based on Renewable Energy Systems:

Photo voltaic pumping system is the one of the application of PV system. Various configurations can be used to operate solar water pumping systems (SWPS) to enhance the efficiency of the system such as SWPS directly coupled with motor drive, SWPS using motor control mechanism. Sensor less induction motor drive (IMD) can be used to operate pump, wherein voltage source inverter along with MPPT control techniques results efficient operation of water pump. Switching signal generated by space vector modulation (SVM) reduces the harmonics in the line voltage of inverter [14]. To drive motor with maximum efficiency, field-oriented control schemes are generally implemented because of reduction of losses and complexity of the system.

Mono-crystalline type silicon solar cells have the highest efficiency and that is 20–30 % only. Even, depending upon the environmental condition and the loading condition the available power from solar cells may further reduce. Besides the energy conversion in the solar cells, extraction of energy converted is also very important. Therefore, in order to extract maximum available power, a control arrangement known as maximum power point tracking (MPPT) is usually implemented for the operation of a PV system at optimal condition under varying operating conditions. Various MPPT techniques have been reported in literature such as perturbation and observation (P & O), constant voltage, fractional open-circuit voltage/short-circuit current, intelligent technique and incremental conductance (IC). Out of all these algorithms, P&O, Constant Voltage and incremental conductance are the largely practiced algorithms.

5. Publication

- 1) **Anuj Rawat**, Shyama Kant Jha, and Bhavnesh Kumar “Position Controlling of Sun Tracking System using Optimization Technique,” Energy Report, Volume 6, pp. 304-309, 2020. **(SCIE Indexed)**

- 2) **Anuj Rawat**, Shyama Kant Jha and Bhavnesh Kumar, “Various Configuration and Control Techniques for Photovoltaic fed motor driven water pumping system,” International Journal of Sustainable Agricultural Management and Informatics, Volume 6, No. 2, 2020. (Scopus Indexed).
- 3) **Anuj Rawat**, Shyama Kant Jha and Bhavnesh Kumar, “Nonlinear fractional order PID controller for tracking maximum power in photo-voltaic system,” Journal of Intelligent and Fuzzy Systems 2019. (SCIE Indexed)
- 4) **Anuj Rawat**, Shyama Kant Jha, and Bhavnesh Kumar, “An Overview of Configuration Strategies and Control Techniques for Solar Water Pumps” International Conference on Sustainable Computing in Science, Technology & Management (SUSCOM-2019) Amity University, Jaipur, 2019.
- 5) **Anuj Rawat**, Shyama Kant Jha, Bhavnesh Kumar and Vijay Mohan, “Nonlinear fractional order PID controller for tracking maximum power in photo-voltaic system” International Symposium on Intelligent Systems Technologies and Applications (ISTA-2019) Indian Institute of Information Technology and Management, Kerala, 2019.
- 6) Anuj Rawat, Shyama Kant Jha, “Analysis of Model order reduction based on Mikhailov Criterion,” IEEE International Conference on Electrical, Electronics, and Optimization Techniques (ICEEOT 2016).

6. Other Details

- Six-month training in Infosys Limited (Jan 2018-June 2018), Mysore.
- Achieved top position in the Free Kick Robotics competition conducted in IIT, Powai held on 2010
- Attended 2 days’ workshop on Solar Robotics conducted by Robosoft systems. IIT Powai.
- Acquired two weeks training in PLC from Rockwell Automation.
- Received three days training in VFD from CRISP.