

Objective of the Programme

The objective of this course is to impart an in-depth knowledge in selection, design and control techniques of power converter circuits for solar PV and wind energy conversions. The course will address circuit oriented aspects and system oriented aspects of power electronics.

The course will help the faculty for smooth conduct of both theory and practical sessions related to power electronics under the curriculum of APJ Abdul Kalam Technological University for UG and PG courses. This programme provides a platform for strengthening modeling and hardware implementation capabilities and gives an opportunity for participants to know the emerging technology in the related areas both in academic and industry perspective which will promote their research interest in the field of renewable energy systems.

Target Audience

The STTP is open for faculty members, research scholars and PG students of APJ Abdul Kalam Technological University (KTU) affiliated Engineering colleges. Faculty and students from EEE, EIE and ECE can attend the program. Number of external participants limited to 30. Selection will be on the first-come-first-served basis and will be intimated through email only. Participation certificates will be issued to all participants who have attended STTP on all days.

Registration

Fill the online form at <https://goo.gl/forms/3ttKL2AAp5OSOkUm2>. The scanned copy of signed sponsorship certificate has to be uploaded in the online form.

Registration Fee: Rs.1000/-

Dates to Remember

Last date for online registration: 26-11-2018

Intimation about selection (by e-mail): 27-11-2018

For more information contact

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Sponsorship Certificate

Certified that Mr./Ms./Dr. is an employee /student of this institution and is hereby sponsored for the STTP on **Design and Development of Power Converter for Renewable Energy Applications** at Saintgits college of Engineering, Pathamuttom during 03rd-07th December 2018. He/she will be permitted to attend the course fully, if selected.

Place:	Name & Signature of
Date:	The Sponsoring Authority

Seal of the Institution



SAINTGITS COLLEGE OF
ENGINEERING,
PATHAMUTTOM

SHORT TERM TRAINING PROGRAMME
(STTP) ON

DESIGN AND DEVELOPMENT OF
POWER
CONVERTERS FOR RENEWABLE
ENERGY APPLICATIONS

03-12-2018 to 07-12-2018



Organized By

Department of Electrical and Electronics
Engineering,
Saintgits College of Engineering,
Pathamuttom, Kottayam 686532.

About the Institute

Saintgits College of Engineering is a premier educational institution, affiliated to the APJ Abdul Kalam Kerala Technological University, located in Kerala. Established in the year 2002, the college offers engineering programs accredited by the All India Council for Technical Education (AICTE): Eight at the undergraduate level, ten at the masters-level and Doctoral program that spans several disciplines. Saintgits College of Engineering is one of the only four engineering colleges in Kerala with 7 NBA accredited programmes. MCA programme of Saintgits is the only NBA accredited MCA programme in entire South India. MBA programme from Saintgits Institute of Management is the only NBA accredited MBA programme in Kerala.

Organizing Department

The Electrical and Electronics Engineering department at Saintgits prides itself for being not only one of the founding departments, but also one that secured a University rank from among the very first batch of graduates (2006). The B.Tech programme is NBA accredited for three years w.e.f 1st July 2016. The post-graduate program in Power Systems was launched in 2008. Department is equipped with a fortifying and veteran group of teachers, technical staff with prodigious and vibrant potential. excellence in research, technical workshops, camps and industrial visits. It is reputed for its excellence in imparting high quality education to Undergraduate and Post Graduate students.

Course Content

The course aims to provide an insight into:

- ◆ Power Semiconductor switches – Characteristics, losses and modeling .
- ◆ Design of drive circuits for IGBTs and MOSFETs
- ◆ Converter topologies and control techniques for solar and Wind power conversion
- ◆ Different modeling methods and their applications to power electronic circuits to obtain a dynamic model.
- ◆ Design of controllers for power electronic systems.
- ◆ Selection of power converters and design parameter challenges in Hybrid Microgrid systems
- ◆ **hardware development** of Solar PV based battery charger development using SMPS system” . Which will cover the basics of solar PV systems, **Power converter** (SMPS selection for the application) (From practical perspective) (Buck converter design, Basics of inductor winding, MOSFET/Switch selection, MOSFET driving techniques and driver development (totem pole)

Isolated voltage measurement, Closed loop operation of the power converter, Discrete PI control).

Battery charger development (Charger development guidelines based on the developed power converter)

Programme Schedule (Tentative)

Day 1 and 2 Solar PV based battery charger development using SMPS system (hands-on)	Er. Bharath K R Amrita School of Engineering, Amritapuri, Amrita Vishwa Vidyapeetham
Day 3 Modeling of Power Electronic Circuits and design of controllers (hands-on)	Dr. Dinesh Gopinath Government Engineering College, Idukki (GECI)
Day 4 1. “Power Converters for Grid-connected SPV Power Plant - Design & Challenges“ 2. “Real time simulation of power electronics and power system	1.Shri Saravana Kumar A CDAC, Thiruvananthapuram 2. Shri Ajeesh A , CDAC, Thiruvananthapuram
Day 5 " Design and development of power electronic controller for wind energy conversion system".	Dr. Vijayakumar Krishnasamy Indian Institute of Information Technology Design and Manufacturing (IIITDM), Kacheepuram