



*A FIVE Day Short Term Course  
on*

## **Resonant Converters and Applications**

**2<sup>nd</sup> - 6<sup>th</sup> July, 2018**

**(Self Financed)**

### **Coordinators**

**Prof. N. Vishwanathan**

**Dr. B. L Narasimharaju**

**Dr. S. Porpandiselvi**

**Organized by  
Department of Electrical Engineering  
National Institute of Technology  
Warangal – 506 004  
Telangana state, India**



### **About the Program:**

In the past few years, power electronics field has grown considerably. It is due to development of switching devices, magnetic components, control techniques, computational methods, DSP/FPGA controllers, etc. Applications of power electronics can be found in several areas like industry, transportation, medical, telecommunication, residential, energy systems, etc. Certain low and high power switching converters are developed in these areas. Several applications require compactness of power converters. This necessitates high frequency switching which results in increased switching losses and reduced efficiency. This hurdle is removed by the use of resonant converters. Soft switching techniques can be incorporated wherever feasible to enhance the advantages. This workshop is intended to cover certain specific application areas where there is increasing demand for improved converter topologies, control techniques, etc. For example, induction heating has several applications like melting, hardening, cooking, etc. It requires high frequency alternating source with high efficiency. LED lighting is an emerging lighting system. Converters required for powering and controlling LED lighting systems need to be developed. Renewable energy sources and their grid connection has several challenges. Power electronics plays vital role in these aspects. Operation, control and modeling of power converters used in these applications will be discussed. Demonstration of certain experimental setup will be done. Also, this workshop aims at giving scope for research.

### **Objectives:**

- To train the teachers and research scholars with the state of art information on the resonant converters and its wide applications.
- To conduct laboratory classes on simulation of resonant converters and its wide applications.
- To provide practical exposure in this area with laboratory classes.
- To enhance the designing capabilities of the participants in the theme area of the programme.
- To empower the participants with usage of MATLAB/PSICE/PSIM tools for theme applications.

### **Course Content:**

- ✓ Introduction to soft switching techniques
- ✓ Induction Heating Applications
- ✓ LED Lighting Systems
- ✓ Electric Vehicles
- ✓ Renewable Energy Applications
- ✓ Bidirectional Power Converters
- ✓ High Voltage Power Supplies
- ✓ Low Voltage High Current Power Supplies
- ✓ Power Quality for Smart Electric Grid
- ✓ Exposure to hardware implementation

### **Resource Persons:**

Eminent faculty of the Electrical Engineering department and Faculty from IITs, other NITs & Industry who have the expertise in these areas will be delivering lectures as core faculty for the workshop.

### **Brief profile of the Department of Electrical Engineering:**

The Department of Electrical Engineering was established as one of the major departments of NITW, in the year 1959. The Department is actively engaged in teaching and research in diverse fields of Electrical Engineering. It offers B.Tech in Electrical & Electronics Engineering, M.Tech program in Power Electronics & Drives and Power Systems and Ph.D program. Broad areas of expertise of the department include Design and development of Smart Grid/ Microgrid systems, Control and integration of Renewable Energy Sources, State Estimation and Real Time Control of Power Systems, AI Applications in Power Systems, Power System Deregulation, Power System Transients, Power Quality, Application of Power Electronics to Power Quality Improvement and Industrial Drives, DSP controlled Drives, Simulation of Power Electronic Converters and Drives Systems and Control of Special Machines. The Department has strong Industry interaction and is involved in various Research & Consultancy projects in coordination with industry, Governments of India, Telangana & Andhra Pradesh. The department has an MOU with Central Power Research Institute (CPRI) to carry out collaborative projects

### About NIT Warangal:

NIT Warangal, formerly known as Regional Engineering College was established in 1959. Over the years it has developed into a premier institute of higher learning and is ranked among the top technical education institutions in India. There are 14 Departments offering eight undergraduate and 32 post-graduate programmes besides doctoral programmes. About 5000 students across the country and about 500 international students study on the campus. It is a fully residential campus sprawling over 250 acres with excellent infrastructure in the form of state of the art library, seminar halls, guest houses and laboratories

### About Warangal:

Warangal is the second largest city of the new state of Telangana. It is situated at a distance of 140 km from the state capital Hyderabad (Nearest Airport). It is well connected by Rail (Kazipet Junction is two km away and Warangal Station is 12 km away) and by Road (NH 202). Warangal is renowned for its rich historical and cultural heritage. It was the seat of erstwhile Kakatiya dynasty. It is a seat of tourist attractions with a number of historical monuments like Thousand Pillars Temple, Warangal Fort, Bhadrakali Temple, Ramappa Temple and Laknavaram Lake located in a radius of 30 kms.

### Registration is open to:

- Faculty members working in engineering institutions.
- Research Scholars

### How to Apply:

Eligible candidates may apply by submitting the filled-in registration form along with registration fee to **the coordinators on or before 28<sup>th</sup> June 2018. Advance scanned copies may be sent by email.**

### Accommodation:

Accommodation for outstation participants will be provided on request in the Institute Visitor's Block or International Students' Hostel.

### Fee Payment Details:

Registration fee should be paid in the form of a Demand Draft drawn in favor of Professor In-Charge, Continuing Education Program (CEP), NIT Warangal payable at SBI, NIT Warangal branch (Code: 20149).

### Registration fee:

Category	Registration Fee
Academicians (Faculty/Research Scholars-with full boarding & lodging)	<b>Rs. 5000 + 18% GST (Total: Rs. 5900)</b>
Academicians (Without accommodation but with programme kit and working lunch only)	<b>Rs. 3500 + 18% GST (Total: Rs. 4100)</b>
Industry Participants	<b>Rs. 10000 + 18% GST (Total: Rs. 11800)</b>

### Selection and Intimation:

As the programme is conducted in a workshop mode with hands-on sessions, the number of participants in the workshop is limited to **40**. The selection will be on first-cum-first served basis among eligible applicants. The selected applicants will be informed about his/her selection through Email.

### For any queries regarding this training programme, please contact the Coordinators.

**Dr. B. L Narasimharaju**

**Associate Professor,**

**Department of Electrical Engineering,**

**National Institute of Technology, Warangal**

**TELANGANA-506001**

**Email:** narasimharaju.bl@gmail.com

**Ph.No.:**+91-8332969294

**Dr. S Porpandiselvi**

**Assistant Professor,**

**Department of Electrical Engineering,**

**National Institute of Technology, Warangal**

**TELANGANA-506001**

**Email:** porpandiselvi@gmail.com, selvi@nitw.ac.in

**Ph.No.:**+91-8332969288

### REGISTRATION FORM

## A FIVE Day Short Term Course on Resonant Converters and Applications

2<sup>nd</sup> - 6<sup>th</sup> July, 2018

(Self-Financed)

1. Name:
2. Gender: M / F
3. Designation:
4. Organization:
5. Address for communication:

---

---

---

E-mail:

Phone No.:

6. Highest educational qualification:
7. Experience in Teaching/Research/Industry (Years):
7. Accommodation required: Yes/No
8. DD Particulars:  
  
Amount: Rs. DD No. :  
Date:
9. Any other information:

Signature