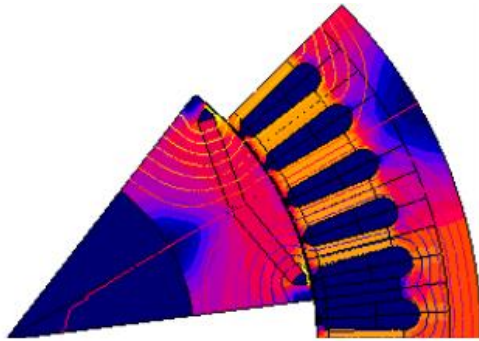


**PSG COLLEGE OF TECHNOLOGY  
COIMBATORE**

**Hands-On Workshop**

**Design, Simulation & Analysis  
of PMSM for Traction**

27<sup>th</sup> – 29<sup>th</sup>, July 2022



**Organized by PSG College of Technology**

**In association with ALTAIR**



**Dept. of Electrical and Electronics  
Engineering**

**PSG College of Technology  
Peelamedu, Coimbatore – 641 004  
Tamilnadu.**

**ABOUT THE WORKSHOP**

The idea of electrification is expanding in wide spectrum of application ranging from two wheelers, four wheelers, and tramway to electric aircraft for cleaner skies. Electric motor technology is the heart of all the engineering application enabling the industry to meet the market demand. Numerous motor designs including rotor topologies, cooling system, winding, mechanical and magnetic material continues to evolve in the recent decades as part of innovation. Exclusively automotive application is gaining momentum focusing on research to reduce the cost, increase torque, power density with enhanced efficiency and reliability in electric motors. As the strategic critical rare earth permanent magnet, materials such as Neodymium Iron Boron are experiencing trade war, tariff in past few months other choices of machines using ferrites or magnet-less topologies are explored. This workshop will address the present scenario and illustrates the possible solution for the young design engineers

**OBJECTIVES**

The Key objective of conducting the workshop on “**Design, Simulation & Analysis of PMSM for Traction**” is to impart latest knowledge to young engineers involved in electrification, motor design for energy efficiency and other spectrum of applications. It emphasizes real world design problems to address the present scenario and illustrate possible solution to the fulfill gap on Industry-University collaborations. This workshop will supplement the fundamental concepts and design strategies involved in IM, BLDC & Reluctance motor designs.

**ELIGIBILITY**

- Practicing engineers from motor industries
- Faculty working in engineering colleges
- Engineers from R&D organizations
- UG/PG engineering students

**WORKSHOP CONTENTS**

- Recent Advance in Traction Motors
- Traction Motor: Spec. Requirement & Goals
- Key Performance Metrics for evaluation
- Torque Speed Curves, Drive cycle & Eff. Map
- Review: Traction Motor Choices
- Topology: Radial vs. Axial
- IPM comparison to PM-SynRM
- Traction motor design principles
- Slot/Pole Selection
- Traction motor modelling using Altair FLUX
- Hands On: Electromagnetic Performance validation - Back EMF computation, Losses, Inductances, Efficiency map.
- Hands On: Electric Machine electromagnetic forces for NVH analysis
- Thermal Analysis of PMSM

**REGISTRATION FEE:**

<b>Students</b>	<b>Rs. 1,500/-</b>
<b>Faculty</b>	<b>Rs. 3,000/-</b>
<b>Industries</b>	<b>Rs. 10,000/-</b>

The registration fee inclusive of GST and cost towards course material, lunch and refreshment.

**PAYMENT DETAILS:**

<b>Net Banking</b>
Bank Account Name: PSG Center for Non-formal and Continuing Education (PSG CNCE)
Bank Account No: 1481267367
IFSC Code: CBIN0280913
Bank Name: Central Bank of India
Branch : Peelamedu, Coimbatore -641 004

**The scanned copy application form is to be sent to:**

**Dr. V. Balaji**

**Co-ordinator**

Email: vbi.eee@psgtech.ac.in

Contact No: 94422 00822/90956 07079

## ABOUT THE COLLEGE

PSG College of Technology established in 1951, is one of the many educational institutions nurtured by PSG & Sons Charities Trust. The college is Government Aided, Autonomous, ISO 9001 2008 certified and affiliated to Anna University. Equipped with latest facilities and excellent infrastructures, the college offers a total of 48 full time and part time programs in Science, Engineering and Management at UG & PG levels. The institution has a strong alumni base, most of them occupying coveted positions in many educational, industrial and research organizations all over the world. Currently more than 520 research scholars, both full time and part time, are working for their Ph.D. degree.

The College has developed more than 45 centers of excellence in various disciplines. More research facilities have been created in tie-up with numerous leading industries in worldwide.

### CHAIRMAN

Dr. K. Prakasan  
Principal, PSG College of Technology

### CONVENORS

Dr. J. Kanakaraj  
Head, Dept. of Electrical and Electronics Engineering

### ORGANISING SECRETARY

Dr. M. Sundaram, Dept. of EEE

### CO-ORDINATORS

Dr. J. Chelladurai, Dept. of EEE  
Dr. M. Anand, Dept. of EEE  
Mr. A. Angamuthu, Dept. of EEE  
Dr. V. Balaji, Dept. of EEE

### Important Date to Remember:

Last date for receipt of application : 22.07.2022

**The details of this workshop is available in the website: [www.psgtech.edu](http://www.psgtech.edu)**

## ABOUT THE EEE DEPARTMENT

The Department of Electrical and Electronics Engineering was one of the few disciplines that was started since the inception of the college in the year 1951. New courses were introduced subsequently and the existing ones were restructured to reflect the state of the art.

The Department of Electrical and Electronics Engineering has been playing a vital role in producing scientists and technologists of highest caliber ever since it was established in the year 1951. The department offers UG (Regular and Sandwich) programmes, PG programmes (Applied Electronics, Power Electronics & Drives, and Embedded & Real-Time Systems), and PhD programmes. The department along with its highly qualified faculty members started functioning right from inception and engages actively in teaching and research in all current areas of Electrical and Electronics Engineering.

State of art computational and experimental facilities enable the department to undertake basic and applied research and provide support to R&D organizations. The students acquire the interpersonal and communication skills from the EEE Association and promote their professional skills serving the society through technology.

### ABOUT THE CEMPE

Centre for Electrical Machines and Power Electronics (CEMPE) specializes in electric motor design and its control with supporting engineering simulation and prototyping solutions. Our research themes include electric machines used in wide spectrum of applications ranging from High-Efficiency Motors, Electric Vehicles, Robots and Extreme High Temperature Motors. Our group had active grants from Dept. of Heavy Industries (DHI), Dept. of Science and Technology (DST) and other governmental organizations. We invite you to take advantage of this opportunity to learn more about our research group.

### PROJECTS ON TRACK AT CEMPE

- Energy Efficient Motor as per IEC Standards
- Electric Motor for High-Temperature Environments
- EV/HEV's Motor Design
- Switched/Synchronous Reluctance
- Digital Welding Power Source

## PSG COLLEGE OF TECHNOLOGY COIMBATORE

### Hands-On Workshop

## Design, Simulation & Analysis of PMSM for Traction

27th – 29th, July 2022

### APPLICATION FORM

Name (in Block Letters):.....

Designation & Dept. :.....

Organization :.....

Address for :.....

Communication : .....

.....

Mob No. :.....

Email Id :.....

Net banking Reference No. & Bank: .....

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Amount in Rs.:.....

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### DECLARATION BY THE CANDIDATE

The given information is true to the best of my knowledge. I agree to abide by the rules and regulations governing the programme. If selected, I shall attend the course for the entire duration.

Place:

Date:

Signature of the candidate