

# Reliability in Power Electronics

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## Overview

Power Electronics is a technology that is pervading all applications concerning electrical energy systems. In the years to come, it is anticipated that all electrical power generated will pass through power electronic stages and be suitably processed for consumption and optimal operation of the load. The impending shift to electric vehicles, development of all electric aircrafts, ships signal the entry of power electronics into mainstream transportation domains as well. Railway transportation is already utilizing power electronics. With such wide scale usage, and under widely varying environmental conditions, the reliability assessment of power devices and other passives used in such circuits assumes tremendous significance.

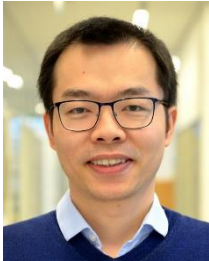
The objectives of this course are as follows.

- (i) Equipping participants with the basics of reliability assessment in general.
- (ii) Enabling participants understand the techniques for Power semiconductor device reliability assessment.
- (iii) Developing an insight into reliability in capacitors and assessment methods
- (iv) Understanding of system level reliability assessment

<b>Course Information</b>	<b>Dates – 16th to 20th October 2023</b> <b>Reliability in Power Electronics</b>										
<b>You Should Attend If...</b>	Product Managers, Development Engineers in Industry Development Engineers, Scientists in R&D Labs of Government Researchers and Academics working in Universities Engineers working in Startups <b>Number of participants for the course will be limited to fifty.</b>										
<b>Fees</b>	The participation fees for taking the course is as follows:  <table><tr><td><b>Participants from abroad</b></td><td><b>: US \$ 500</b></td></tr><tr><td><b>Students</b></td><td><b>: INR 1000</b></td></tr><tr><td><b>Faculty</b></td><td><b>: INR 2500</b></td></tr><tr><td><b>Industry / Research Organizations</b></td><td><b>: INR 10000</b></td></tr><tr><td><b>Government Labs</b></td><td><b>: INR 5000</b></td></tr></table> The above fee includes all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, 24 hr free internet facility.  <b>Modes of payment:</b>	<b>Participants from abroad</b>	<b>: US \$ 500</b>	<b>Students</b>	<b>: INR 1000</b>	<b>Faculty</b>	<b>: INR 2500</b>	<b>Industry / Research Organizations</b>	<b>: INR 10000</b>	<b>Government Labs</b>	<b>: INR 5000</b>
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	<p><u>Online transfer:</u> Click here to pay: <a href="https://elearn.nptel.ac.in/gian/">https://elearn.nptel.ac.in/gian/</a></p>
<b>Accommodation</b>	<p>The participants may be provided with hostel accommodation, depending on availability, on payment basis. Request for hostel accommodation may be submitted through the link:  <a href="http://hosteldine.iitm.ac.in/iitmhostel/">http://hosteldine.iitm.ac.in/iitmhostel/</a></p>
<b>Registration Procedure</b>	<p>Please follow the following steps for the registration:</p> <ol style="list-style-type: none"> <li>1. Go to GIAN website (<a href="http://www.gian.iitkgp.ac.in/GREGN/index">http://www.gian.iitkgp.ac.in/GREGN/index</a>) First time users need to register and pay a one-time fee of INR 500 /</li> <li>2. Enroll for the course: Reliability in Power Electronics. Once you enroll for the course, an Enrollment/Application number will be generated, and the course coordinators will be notified.</li> </ol>

## The Faculty



**Huai Wang** is a Professor at the Department of Energy, Aalborg University in Denmark. He leads the Reliability of Power Electronic Converters (ReliaPEC) group and chairs the Mission of Digital Transformation and AI at AAU Energy, with 13 affiliated research groups. His research addresses the fundamental challenges and application issues related to efficient, reliable, and cognitive power electronic converters. He was Chair of the IEEE IAS/IES/PELS Chapter in Denmark from 2018 to 2020 and currently serves on the editorial board of 4 journals from IEEE, Springer Nature, and Elsevier. In 2023, he was elected as a member of the Danish Academy of Technical Sciences.



**Krishna Vasudevan** is Professor in the Electrical Engineering Department at the Indian Institute of Technology Madras, India. His expertise is in the area of power electronics applied to motor drives and renewable energy / microgrids. His group works on technological projects with industrial significance e.g. development of SiC based PV inverters for microgrids, Development of Motor Drives for Machine Tool Applications. He is also a Senior Member of IEEE and a member in the Power Electronics Committee of Indian Standards.

## Course Co-ordinator

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<https://sites.google.com/a/ee.iitm.ac.in/krishna-vasudevan/>