NC State University

NC STATE UNIVERSITY

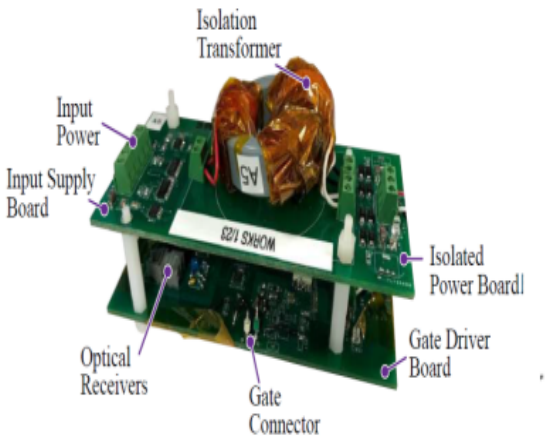
Membership Level (Full)

Project Title: **Short Course Module for Application of HV SiC Devices based MV Power Converters for Power Electronics Engineers and Students**

Objectives: To create workforce and educate graduate students and researchers in the field of gate drivers design for SiC devices. Preparation of Study materials on Gate Drivers, Short Circuit Test for D-Sat protection validation, double pulse test for device characterization, boost converter for continues operation, and avalanche test, hard and soft switching operations of SiC based converters, etc..

Major Milestones: Preparation of course materials and tutorials on SiC Devices and their applications to educate undergraduate and graduate students and to create a workforce capable of utilizing SiC devices for future LV and MV power applications .

Deliverables: Course materials and tutorials.



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WBG Technology Impact

- Workforce capable of using SiC devices in power application
- One day short course module development on "Application of HV SiC Devices for MV Power Converters"
- Presentation of Short course module (and sub-modules) at the PowerAmerica Summer Workshops (at NCSU), and "on the road" at industry sites and at IEEE conferences as tutorials
- Developed materials will be "published" by PowerAmerica and its copyright will be transferred to PowerAmerica

More WBG Impact and Additional impacts

- Reduction in the weight and volume of existing Si based power electronic systems
- With skilled workforce in SiC based power electronics, more reliable and compact products are achievable
- Potential for Job Creation, Economic impact
- Workforce Development and Education