<p style="text-align:center">A Technical Seminar on</p>

Matrix Converter: An Advanced Converter Topology in Power Electronics

<p style="text-align:center">by:</p>

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IEEE National Lecturers Program (NLP)

August, 1st, 2007
2.30pm -4.30pm
Block P05 Room 105,
Fakulti Kejuruteraan Elektrik,
Universiti Teknologi Malaysia
Skudai, JOHOR

Organized by:
Power Electronics, Industrial Electronics and Industry Applications , Societies Joint Chapter of IEEE Malaysia Section
Co-organizer:
Faculty of Electrical Engineering, UTM

Seminar Overview

An overview of power electronic trends in applications are outlined that also includes; energy concerns, trends in motor driven consumer electrics, renewable energy scenario, the lighting scenario and related solid state device developments. The three-phase matrix converter (TPMC) and the Venturini algorithm are then introduced. The various common switch-cell topologies is outlined. Simple commutation that has been the limiting factor for progress in TPMC research for about 25 years is discussed with simple strategies by Kwon presented. Different variations of the topology in basic form are reviewed with possible control arrangements. Selected recent applications are overviewed.

The second part of the talk discusses the single-phase variant referred as Single-phase Matrix Converter (SPMC); a single topology performing all the basic functions without any change in the structure that includes; AC-DC, AC-AC, DC-AC & DC-DC energy conversion. Safe-commutation techniques are reviewed. Bidirectional operation will be outlined. Using boost circuits and basic control; boost operations are formulated complete with active filter algorithm making SPMC an attractive, versatile topology with extensive improved converter capabilities. Details of various stages of operation will be presented. Some applications are outlined, that includes; electronic transformer, induction heating and dynamic voltage restorer with other possible research directions.

Seminar Presenter

A lecturer with the Faculty of Electrical Engineering, Universiti Teknologi Mara(UiTM), Shah Alam since 1985. Currently the vice-chair of the IEEE Malaysia PELS/IES/IAS joint chapter and was the Hon.Secretary IEE Malaysia (90/91). From 1983, he served as electrical engineer at Kuantan Port Authority. He was seconded to the Development Department of UiTM (86-87). Amongst other positions includes; Head of Power Engineering Dept UiTM, Special Officer Academic Affairs Division UiTM, Special Assistant to Vice Chancellor for implementation of new engineering complex with 160 engineering labs and 12 computer centres and was also the coordinator, SUN Microsystem Academic Initiatives (SAI). He has published/presented over 50 technical papers in various areas and conducted over 50 public lectures/workshops, served as a power quality consultants to a number of organisations, the Chief Examiner for the MLVK certification exams and served as chairmen of Applications Bioinformatics for the formulation of National Bioinformatics Technology Roadmap. His current area of research interests includes; Matrix Converters, Active Power Filters, Bioinformatics, Industrial Electronics and Power Electronics.

This is a **FREE** Seminar but registration is required for logistics purposes. Seats are limited: first come first serve basis.
For registration and more details please email: **nikrumzi@ieee.org** or visit **http://ewh.ieee.org/r10/malaysia/ie_ia_pel/**

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Universiti Teknologi Malaysia
Skudai, Johor

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Email it to nikrumzi@ieee.org

Venue : Room 105, Block P05, Fakulti Kejuruteraan Elektrik, UTM

Name and Address of Organisation:	
Name of Contact person:	
Telephone No:		**Fax. No:**	
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Name of participants:	IEEE membership number if applicable
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