



**Distinguished  
Lecturers Program  
(DLP)**

## "Mechatronics in 21st Century"

**16<sup>th</sup> August 2007 (Thursday) : 9.00 – 11.30 am**  
**Selangor Human Resource Development Centre**  
**1A, 1st Flr, Block 2, Pusat Perniagaan Worldwide,**  
**Jalan Tinju 13/50, Section 13, 40100 Shah Alam**

**Prof. Okyay Kaynak,**  
**Unesco Chair & Professor in Mechatronics,**  
**Bogazici University, Turkey**

**Organized by:**  
**Power Electronics, Industrial Electronics and Industry Applications**  
**Societies (PELS/IES/IAS) Joint Chapter of IEEE Malaysia Section**  
**Co-organizers:**

- Selangor Human Resource Development Centre, Shah Alam

**FREE of  
CHARGE**

### **Seminar Overview**

This talk first discusses the erosion of the boundaries between different disciplines in the information age. It is argued out that these changes necessitate a paradigm shift from teaching to learning, accompanied by changes in the skills that need to be acquired. What an engineer of the 21st Century needs to know and what skills he/she need to have are elaborated upon and, considering the general trends in industry, the capabilities that an engineer needs to develop in order to be able to cope with the changes are discussed. It is said that mechatronics offers a best practice for synthesis and meeting the challenges. The evolution of Mechatronics over the past 40 years is considered and a new definition of mechatronics for the 21st Century is cited.

The talk then dwells upon how to define "intelligence" of man-made machines and continue with a discussion on the state-of-art reached. A perspective on the future is given, based on "futurology" rather than "prophecy". The trends seen in this respect over the last century is overviewed and it is argued that the Moore's Law will have to reach an end, not so much because of technological difficulties but because of financial ones. Quantum and molecular computing are offered as possible alternatives.

The presentation then considers the changes observed in manufacturing industries. The goals of the Intelligent Manufacturing Systems Consortium are overviewed with special emphasis on Holonic Manufacturing Systems. Some demonstrations are screened. These changes in industry indicate a paradigm shift from industrial electronics to industrial informatics. In the closing parts of the presentation, a technological roadmap is given, pointing out to the necessary breakthroughs. The necessity for understanding cognitive perception is emphasized. The talk closes with a consideration of the possible research directions in mechatronics and robotics.

### **Seminar Presenter (Prof. Okyay Kaynak, Fellow IEEE )**

Okyay Kaynak received the B.Sc. degree with first class honors and Ph.D. degrees in electronic and electrical engineering from the University of Birmingham, UK, in 1969 and 1972 respectively.

From 1972 to 1979, he held various positions within the industry. In 1979, he joined the Department of Electrical and Electronics Engineering, Bogazici University, Istanbul, Turkey, where he is presently a Full Professor. He has served as the Chairman of the Computer Engineering and the Electrical and Electronic Engineering Departments and as the Director of Biomedical Engineering Institute at this university. Currently, he is the UNESCO Chair on Mechatronics and the Director of

Mechatronics Research and Application Centre. He has hold long-term (near to or more than a year) Visiting Professor/Scholar positions at various institutions in Japan, Germany, U.S. and Singapore. His current research interests are in the fields of intelligent control and mechatronics. He has authored three books and edited five and authored or coauthored more than 200 papers that have appeared in various journals and conference proceedings.

Dr. Kaynak is a fellow of IEEE. He has served as an Associate Editor of the IEEE Transactions on Neural Networks and as the Editor-in-Chief of IEEE Transactions on Industrial Informatics. Currently he is an Associate Editor of the IEEE Transactions on Industrial Electronics, IEEE Sensors Journal and the Area Editor (Robotics and Mechatronics) of the Springer journal; Soft Computing. Additionally he is on the Editorial or Advisory Boards of a number of scholarly journals.

Dr. Kaynak is active in internationally organizations, has served on many committees of IEEE and was the president of IEEE Industrial Electronics Society during 2002-2003.

## Registration

This is a Free Seminar but registration is required for logistics. Seats are limited: first come first serve basis. For more details, please contact:

**Siti / Pesala / Aizam / Farah**  
**IEEE PELS/IAS/IES Seminar Secretariat,**  
**Selangor Human Resource Development Centre,**  
**Phone: 03-5513 3560 Fax: 03- 5513 3490**  
**Email: [info@shrdc.org.my](mailto:info@shrdc.org.my)**

For more information on the location, please visit;

**<http://www.shrdc.org.my/contactus.asp>**

To know more about our PELS/IAS/IES Joint Chapter, please visit [http://ewh.ieee.org/r10/malaysia/ie\\_ia\\_pel/](http://ewh.ieee.org/r10/malaysia/ie_ia_pel/)

Kindly fax this page back to the Seminar Secretariat latest by 10<sup>th</sup> August 2007.

Fax: 03- 5513 3490 (Attn: Siti / Pesala / Aizam / Farah)



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## An invitation to a Technical Seminar on "Mechatronics in 21st Century"

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1A, 1st Flr, Block 2, Pusat Perniagaan Worldwide,  
Jalan Tinju 13/50, Section 13, 40100 Shah Alam

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CHARGE**

<b>Name and Address of Organization:</b>			
<b>Name of Contact person:</b>			
<b>Telephone No:</b>		<b>Fax. No:</b>	
<b>Email address:</b>			
<b>Name of participants:</b>			<i>IEEE membership number (if any)</i>
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