



**Electrical Engineering Department
Collage of Engineering
King Saud University
Riyadh, KSA**

Seminars held in 2013 and 2014

Invites you all to attend a Technical Lecture on E-learning in the Classrooms

Wednesday, December 24, 2014 (02/03/1436H)

Time: 12:30 pm - 1:30 pm

Venue: Room 2C114, EE Department Meeting Room

Abstract:

E-learning is the use of information and communication technology (ICT) in learning and teaching. This can enable people to access learning anytime and anywhere. E-learning applications and processes include Web-based learning, computer-based learning, virtual classrooms, digital collaboration and mobile-learning. This talk will cover some of the tools which are available in KSU which can be used for e-learning. The topics which shall be covered are given below:

- Smart board (10 min.)
 - Using Smart board as a traditional board, and some features.
- Uploading content to LMS (10 min.)
 - Login LMS, main tools and content area.
 - Uploading suggestion template for e-courses.
- Access WileyPlus courses from LMS (10 min.)
- Sending SMS and e-mail (5 min.)
- Access courses through mobile "as an example of Mobile Learning" (10 min.)
- Creating assignment, e-test, and mobile compatible test (15 min.)

Note: All are welcome and refreshments will be served.

Speaker:

Dr. Ahmad Omar
E-learning Unit
Faculty of Engineering
King Saud University

Invites you all to attend a Technical Lecture on
Insert Title


Thursday, December 11, 2014 (19/2/1436H)
Time: 1:30 pm - 2:30 pm
Venue: Room 2C114, EE Department Meeting Room

Abstract:

Note: All are welcome and refreshments will be served.

Speaker:

Dr. Constantine A. Balanis
Regents' Professor
School of Electrical, Computer and Energy Engineering
Arizona State University, USA



Dr. Balanis received the Bachelor of Science degree from Virginia Polytechnic Institute and State University, in 1964, the Master of Science degree from the University of Virginia, in 1966, and the Doctor of Philosophy degree in Electrical Engineering from Ohio State University, in 1969, and an Honorary Doctorate from the Aristotle University of Thessaloniki in 2004. Starting from 1964 he held various research and teaching positions at NASA, West Virginia University and Arizona State University where he is now a Regent's Professor. His research interests are in low- and high-frequency methods for antennas propagation, and scattering; smart antennas for wireless communication; penetration and scattering of High Intensity Radiated Fields (HIRF); and multipath propagation. He received the 2000 IEEE Third Millennium Medal, the 1997 Outstanding Graduate Mentor Award of Arizona State University, the 1992 Special Professionalism Award from the IEEE Phoenix Section, the 1989 IEEE Region 6 Individual Achievement Award, and the 1987-1988 Graduate Teaching Excellence Award, School of Engineering, Arizona State University. Dr. Balanis is a Life Fellow of the IEEE, and a member Sigma Xi, Electromagnetic Academy, Tau Beta Pi, Eta Kappa Nu, and Phi Kappa Phi. He is the author of Antenna Theory: Analysis and Design (Wiley; 1982, 1997, 2005) and Advanced Engineering Electromagnetics (Wiley, 1989).

Electrical Engineering Department, College of Engineering and KACST-TIC in Radio Frequency & Photonics for the e-Society (RFTONICS) are pleased to invite you to attend a talk entitled:

Paving the Way to 5G

by

Farris Alhorr

**Senior Business Development Manager – MENA
National Instruments**

Date: Wednesday, October 29, 2014 (05/01/1436H)

Time: 12:30 – 1:30 pm

Venue: Room 2C114, Electrical Engineering Dept. Conference Room

ABSTRACT:

Wireless consumers insatiable demand for bandwidth has spurred unprecedented levels of investment from public and private sectors to explore new ways to increase network capacity and meet escalating demand. Industry analysts predict demand will outpace capacity; it's simply a matter of when. Wireless researchers continue to present ideas to address capacity challenges and explore network topologies that not only tackle capacity concerns but also offer features and functions never thought possible before. Transitioning from concept, which is largely a software exercise, to a working prototype with real signals and waveforms requires extensive investments in time and money, and has been an impediment to the adoption of new technologies and capabilities. Design approaches that embrace software reconfigurability with an accelerated path to prototyping can expedite the design, exploration, and deployment of these technologies in new and exciting ways.

BIOGRAPHY:

Farris Alhorr is an RF specialist and Senior Business Development Manager at National Instruments for the Middle East and North Africa region. Farris has more than 9 years of industry experience focusing on RF test and measurement instruments, wireless system design, and over the air (OTA) wireless testing. He worked as an RF systems consultant for 5 years and was heavily involved in the CTIA MIMO OTA subgroup. His major CTIA contributions include a patented method on how to make OTA measurements for wireless devices in a reverberation chamber. Besides his technical expertise, Farris worked as a product line manager for the NI Software Defined Radio (SDR) platforms with a focus on government, industrial, and academic research applications. He successfully launched two new NI USRP SDRs, and has given multiple seminars on SDR and LabVIEW in multiple IEEE conferences. Farris holds a Master of Business Administration from The University of Texas at Austin and Master of Electrical Engineering from Texas Tech University.



قسم الهندسة الكهربائية
Electrical Engineering Dept

Electrical Engineering Department,
College of Engineering,
King Saud University,
Riyadh, KSA.



Invites you all to attend a Technical Lecture on Spectrum Scarcity and Optical Wireless Communications

Monday, January 5th, 2015 (14/03/1436H)

Time: 1:30 pm - 2:30 pm

Venue: Room 2C114, EE Department Meeting Room

Abstract:

Rapid increase in the use of wireless services over the last two decades has led to the problem of the radio-frequency (RF) spectrum exhaustion. More specifically, due to this RF spectrum scarcity, additional RF bandwidth allocation, as utilized in the recent past, is not anymore a viable solution to fulfill the demand for more wireless applications and higher data rates. Among the many proposed solutions, optical wireless communication or free-space optical (FSO) systems have gained an increasing interest due to their advantages including higher bandwidth and higher capacity compared to the traditional RF communication systems. This promising technology offers full-duplex Gigabit throughput in certain applications and environment while benefiting from a huge license-free spectrum, immunity to interference, and high security. These features of FSO communication systems potentially enable solving the issues that the RF communication systems face due to the expensive and scarce RF spectrum. The first part of the talk will give an overview of FSO communication systems by offering examples of advantages and application areas of this emerging technology. In the second part of talk, we will focus on some recent results and on-going research directions in the accurate characterization of the performance analysis of FSO systems in the presence of inevitable impairments due to atmospheric turbulence and misalignment between transmitter and receiver.

Speaker:

Dr. Mohamed-Slim Alouini

Computer, Electrical, and Mathematical Science and Engineering (CEMSE) Division
King Abdullah University of Science and Technology (KAUST)

Speaker Bio: Mohamed-Slim Alouini (S'94, M'98, SM'03, F'09) was born in Tunis, Tunisia. He received the Ph.D. degree in Electrical Engineering from the California Institute of Technology (Caltech), Pasadena, CA, USA, in 1998. He served as a faculty member in the University of Minnesota, Minneapolis, MN, USA, then in the Texas A&M University at Qatar, Education City, Doha, Qatar before joining King Abdullah University of Science and Technology (KAUST), Thuwal, Makkah Province, Saudi Arabia as a Professor of Electrical Engineering in 2009. His current research interests include the modeling, design, and performance analysis of wireless communication systems.



Electrical Engineering Department,
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Invites you all to attend a Technical Lecture on

“Real-Time Simulation and Control of Electric Power Systems, Power Electronics, and Motor Drives”

Wednesday, 27/ 11/ 2013 (24/01/1435H)

Time: 1:30 pm -- 2:30 pm

Venue: Room 2C114, EE Department Meeting Room

OBJECTIVES:

- Explain real-time digital simulation of electric systems, and their requirements
- Describe state-of-the-art technologies and tools used in real-time simulators
- Demonstrate how real-time simulation is a valuable research and teaching tool

SEMINAR PLAN:

- a) Overview of real-time Simulation and real-time digital simulators
- b) Applications of real-time simulation in electric systems, from motor drives, power converters, and FACTS, to renewable energy systems and conventional power grids
- c) Real-time Control Prototyping (RCP) and Hardware-In-the-Loop (HIL) simulation
- d) Challenges and solutions in conducting real-time simulation of electric systems
- e) Typical projects from actual research and industrial projects in: Motor Drives, FACTS, Power Grid (Protection, Monitoring,), Renewable Energy, Smart Grids, Hybrid Vehicle

Note: All are welcome and refreshments will be served. Graduate students in Electrical Power and Machines and Sustainable Energy Technologies are encouraged to attend.

Speaker:

Simon Abourida, M.Eng



OPAL-RT Technologies (www.opal-rt.com)

Simon Abourida is the Business Development Manager for the Middle East at Opal-RT Technologies. He has a Master's degree in electrical engineering (Power Electronics) from Ecole Polytechnique de Montreal (1994). At Opal-RT, he is involved in project management, R&D, marketing and sales, commissioning and training, in the area of real-time simulation and hardware-in-the-loop testing of dynamic systems mainly power systems, power electronics and motor drives.

Invites you all to attend a Technical Lecture on

“Performance of N^{th} - Best Decode-and-Forward Relay Networks with Co-Channel Interference over Rayleigh Fading Channels”

Wednesday, 30/ 10/ 2013 (25/12/1434H)

Time: 11:00 am -- 12:00 pm

Venue: Room 2C114, EE Department Meeting Room

Abstract :

Cooperative diversity or relay network is an efficient technique used to enhance the communication link and to combat the multipath fading in wireless networks. Among the common relay selection schemes used in such networks is the opportunistic relaying (best relay selection). One advantage of this scheme is the diversity order it provides which equals that of the conventional relaying where all relays are used. In some practical situations as in ad-hoc networks, the best relay may not be available for cooperation due to some scheduling and load balancing duties. In such case, the 2nd best or even the N^{th} best relay is asked to forward the source message to destination.

In this talk, the performance of the N^{th} -best decode-and-forward (DF) relay networks is evaluated in the presence of co-channel interference and assuming Rayleigh fading channels. The analytical tools used to obtain the performance of such networks are presented and discussed. The analytical results are validated by Monte-Carlo simulations and the effect of interference and some system parameters like the number of relays and order of relays is illustrated via some numerical examples. The talk concludes with the key results and a discussion on the current related topics in research.

Note: All are welcome and refreshments will be served.

Speaker:

Dr. Anas Salhab

Postdoc Researcher

Dept. of Electrical Engineering

King Fahd University of Petroleum and Mineral (KFUPM)



Dr. Anas Salhab received his B.Sc. degree in Electrical Engineering from Palestine Polytechnic University (PPU), Palestine, in 2004, and the M.Sc. degree in Communications and Electronics Engineering from Jordan University of Science and Technology (JUST), Jordan, in 2007, and the Ph.D. degree in Communications Engineering from King Fahd University of Petroleum & Minerals (KFUPM), Saudi Arabia, in 2013. He is currently continuing his research as a postdoctoral with the Department of Electrical Engineering, KFUPM. His research interest

spans special topics in modeling and performance analysis of wireless communication systems, including cooperative relay networks, relay selection schemes, cognitive relay networks, and co-channel interference.



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Invites you all to attend a Technical Lecture on

“Early Frontiers for 5G Gigabit Cellular Technologies”

Wednesday, 18/ 09/ 2013 (12/11/1434H)

Time: 11:00 am -- 12:00 pm

Venue: Room 2C114, EE Department Meeting Room

Abstract :

This talk will focus on the recent specifications emerging for 5G Gigabit cellular systems, and the early frontier technologies that system developers are hoping to explore for realizing such an ambitious wireless data rate at the moment. Then speaker will review some of the challenges that potentially hinder the deployments of these emerging technologies, and highlight some of the research issues still open to be solved. Finally, the activities of the research group in the department in this area will be briefed.

Note: All are welcome and refreshments will be served.

Speaker:

Dr. Ahmed Iyanda Sulyman
Dept. of Electrical Engineering
King Saud University

Dr. Sulyman received the PhD degree from the Department of Electrical and Computer Engineering, Queen's University, Canada in 2006. He was an Adjunct Teaching Fellow at Queen's University during 2004-2006, a Post-Doctoral Research Fellow at the Royal Military College of Canada, during 2007-2009, and has been with the Department of Electrical Engineering at King Saud University, Saudi Arabia, since 2009, where he is currently an Associate Professor. His research interests are in wireless communications and signal processing. He is a Senior Member of the IEEE, and has authored/co-authored one book, five book chapters, and over fifty journal and conference articles.



**Electrical Engineering Department,
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Invites all to attend a Technical Lecture on

“IC Test and Reliability in 22 nm and Beyond: Do we need to care?”

Tuesday, April 30, 2013 (20/06/1434H)

Time: 11:00 -- 12:00

Venue: Room 2C114, EE Department Meeting Room

Abstract :

No one can deny the fact that we rely heavily on electronic systems in our daily life. It is almost impossible to imagine a day without your smart phone, computers, TV or even your coffee-machine. Without electronics, business/work couldn't continue any more, the quality of education would deteriorate, and the life quality probably turns back to the 18th century. Most of us might lose their jobs, because most of the current jobs cannot continue in the absence of electronics. Electronics have significantly changed our life, Designing, verifying, manufacturing and testing such electronic systems are very complex and time-consuming processes.

This talk starts first with highlighting the fundamental invention that made electronic systems a reality. The story starts with a new employee engineer in mid-1958 at Texas Instruments, who did not yet have the right to summer vacation, proved that resistors, transistors and capacitors could exist on the same piece of semiconductor material (i.e. Integrated Circuit IC); an invention that fueled the electronics revolution and even gave Silicon Valley its name. The talk will then highlight the state-of-the art in IC design. Technology scaling, which made electronics accessible and affordable for almost everyone on the globe, has advanced IC and electronics since the sixties. Nevertheless, It is well recognized that such scaling has a physical, if not economical, end and it is getting closer to it. The talk will address the scaling and its impact on different aspects of IC and electronics (including design, test and in particular reliability) both for near and long terms. Possible ways for the realization of future electronics systems will be also discussed

Note: All are welcome and refreshments will be served.

Speaker:



Said Hamdioui
Delft University of Technology, Netherlands

Professor Hamdioui received the MSEE and PhD degrees (both with honors) from the Delft University of Technology (TUDelft), Delft, The Netherlands. He is currently co-leading dependable-nano computing research activities within the Computer Engineering Laboratory of TUDelft. His research interests include dependable nano-computing and VLSI Design & Test (defect/fault tolerance, reliability, security, nano-architectures, Design-for-Testability, Built-In-Self-Test, 3D stacked IC test, memory test, defect oriented test, etc.). Dr. Hamdioui is a senior member of the IEEE.



Electrical Engineering Department,
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Invites all to attend a Technical Lecture on

“Power Quality Problems: Detection and Mitigation”

Tuesday, April 2, 2013 (21/05/1434H)

Time: 11:00 -- 12:00

Venue: Room 2C114, EE Department Meeting Room

Abstract :

Modern electric power systems with new distributed renewable power sources such as wind power and solar power have seen the participation of a large amount of new power electronic devices. The recently developed technology related to the concept “smart grid” in power systems also contributes to make the system more complex. The increasing use of power electronics devices contributes further to the arising power quality (PQ) problem that is becoming more and more serious, and has been a great threat to the safety of electric power systems and the national economy as a whole.

In this seminar, new efficient methods for power quality problems monitoring, detection, and tracking will be introduced. These methods are mainly based on wavelet multi-resolution analysis and RMS voltage calculation. Furthermore, a new efficient technique for online accurate harmonic estimation based on separable least squares will be discussed as well as control strategies for mitigation devices for power quality problems. We will talk about the implementation of power quality monitoring system in the PQ Laboratory using LABVIEW software, developed data acquisition cards, real time signal processors, and a simplified model for the distribution network with its associated bulk loads.

Note: All are welcome and refreshments will be served.

Speaker:

Dr. Fouad Zaro

Electrical Engineering Department,
King Fahd University of Petroleum and Minerals (KFUPM)



Fouad Zaro has received his BS degree in Electrical Engineering from Palestine Polytechnic University. Later on, he received his MS and PhD degrees in Electrical Engineering from King Fahd University of Petroleum and Minerals (KFUPM). He is interested in Power Quality, Artificial Intelligent Techniques, Power System Planning and Operation.



Electrical Engineering Department,
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Invites all to attend a Technical Lecture on

"Ultra Low Power RF Design Techniques for Medical Implant Devices"

Tuesday, February 26, 2013 (16/4/1434H)

Time: 11:00 -- 12:00

Venue: Room 2C114, EE Department Meeting Room

Abstract :

High data rate, short range and power efficient data telemetry is an important topic of research for medical implant communication systems. The main challenge in implant device is its high data transfer with ultra low power requirement to increase the battery life over a decade. Channel bandwidth in transmit and receive modes depends on the type and application of implanted device. Epi-retinal implants require high data rate (2-5Mb/s) communication from external sensors and data processors to the implant devices and low data rate (in the range of kb/s) for implant monitoring from inside-body to the outside-body. In contrast, neural recording implants require transmission of data rates higher than 10Mb/s from inside to the outside-body and low rate control data (in the range of hundreds of kb/s) from outside to the inside-body. Thus, the challenging task is the design of low power high data rate receiver for epi-retinal implants and low power high data rate transmitter for neural recording implants. This lecture will explain the design concept and RF circuit design techniques for ultra low power and high data transceivers for implant communication systems. Experimental results will be presented and compared with the state of the art RF transceiver front-end for neural and epi-retinal implant devices.

Note: All are welcome and refreshments will be served.

Speaker:

Dr. Syed Muhammad Anis
Assistant Professor,
Electrical Engineering Department,
King Saud University



Dr. Syed Muhammad Anis received M.Sc. and Dr.-Ing. Degree in Electrical Engineering from the University of Kaiserslautern, Germany, in 2003 and 2008 respectively, both with highest honors. From 2008-to-2012, he worked as Senior RF-IC design engineer in industrial R&D research projects in Advico Microelectronics, EADS Chair in University of Ulm, Germany and Masdar-MIT joint project in UAE.

Invites you all to attend a Technical Lecture on

“Applications of High Field MRI in Preclinical Translational Research”

Tuesday, January 8, 2013 (26/2/1434H)

Time: 11:00 -- 12:00 am

Venue: Room 2C114, E.E. Department Meeting Room

Abstract :

Preclinical magnetic resonance imaging (MRI) is increasingly being used in experimental research, including investigations of injured spinal cords in treated and untreated rodent models. Special equipments involve high field magnets and inductively-overcoupled implantable radio frequency coils to obtain high resolution data and imaging protocols to obtain contrast sensitive to anatomy, structure and function. The current capabilities will be reviewed with special examples visualizing neuronal or vascular plasticity in injured cords and other applications in cancer, cardiac and other researches to demonstrate how the acquired data contributes to the understanding of the disease processes. Nano particles in biomedical applications will be summarized and a special example with Gadolinium doped particles developed for evaluating kidney function using in vivo MRI will be discussed.

Note: All are welcome and refreshments will be served.

Speaker: Prof. Dr. Mehmet Bilgen

Associate Professor of Radiology
Medical University of South Carolina (MUSC)
Charleston, South Carolina, USA



Dr. Bilgen has been with various academic and research institutes since 1987. His research includes applications of ultrasound in elastography imaging, tissue characterization, and nondestructive evaluation, wave propagation in inhomogeneous media, signal processing and hyperthermia. More recently his research has shifted towards the applications and development of magnetic resonance imaging techniques and modalities to healthcare related problems concerning cardiovascular disorders, neuroscience, cognition, bio-mechanics, nano-medicine and testing of potential pharmacological approaches in various disease conditions.

