Eligibility and more:

I. Regular Graduate Students, Research Associates at QAU and Affiliated Centers/Colleges are eligible to participate.

II. Graduate students/Research groups should contact in advance to reserve time for specialized research discussion.

III. No registration fee is charged, however, because of limited capacity, applicants shall be treated on first come first serve basis.

IV. Applicants are requested to fill in and return the registration Form as soon as possible and no later than May 18, 2012.

For Contact:

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**A short course on**

### ‘Nano-scale Electronic Devices and Systems’

**Delivered by**

**Dr Hassan Raza**
Department of Electrical and Computer Engineering
University of Iowa, USA

May 21, 2012 to June 01, 2012

Department of Electronics, QAU

**Activity**

- Short Course on ‘Nano-scale Electronic Devices and Systems’.
- Two Seminars on ‘Graphene/ Silicon Nanoelectronics’ and ‘Spintronics’.
- Graduate Student/Research Group Discussion, on demand

- **Organized by**
  **Dr. Aqeel A. Syed**
  Department of Electronics

- In Collaboration with
  **Dr Nawazish Ali Khan**
  and
  **Dr Kashif Sabeeh**
  Department of Physics

- **Sponsored by**
  Higher Education Commission Pakistan
  under the **Short Term Visiting Scholar Program**

- **Offered by**
  Department of Electronics, Quaid-i-Azam University, Islamabad

**Course Detail**

I. **Course Conduct**
II. Course Description

A multidisciplinary two-week course on fundamentals of Nanoscale devices and systems comprising theoretical, computational, and experimental aspects of the subject will be conducted in regular lectures. Some lab exercises will also be offered as a part of this course. The outline of the course is as follows:

**Module I. Theory and Computation**
- Introduction to Nanoscale Devices and systems, Atomic Structure
- Electronic Structure
- Quantum Transport: Coherent Regime
- Quantum Transport: Incoherent Regime

**Module II. Nanoscale Devices**
- Electronic Devices: Logic and Memory Applications
- Spintronics Devices
- Solar Cells and Optoelectronics
- Thermoelectric Devices
- Batteries and Fuel Cells

**Module III. Nanoscale Systems**
- Charge Couples Devices
- Nanoelectromechanical Systems

**Module IV. Fabrication and Characterization**
- Device Fabrication at Nanoscale
- Microscopy (Optical, Electron, Scanning Probe)
- Spectroscopy (IR, Raman, PES, XPS)

*Soft copy of the course material shall be forwarded to the registered participant via email.

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Schedule

*Application forms can also be downloaded from the university webpage.

*Applicant shall be entertained on first come first serve and relevance bases.