**Workshop on “Mini Projects for Deployment of Smart Grid Technology”**

**The UWI-Trinidad and Tobago Research and Development Impact Fund**

**The University of the West Indies, St. Augustine**

**2nd April 2015**

**9.00am to 4.00pm**

**General Description:**

To meet the current energy demand, reduce carbon footprint and to effectively utilize devices of modern technology, we need to upgrade our existing electrical grids to smart grids. The smart grid can be regarded as an electrical system that uses information technology, cyber secure communication technologies and computational intelligence in an integrated fashion across electricity generation, transmission, substations, distribution and consumption to achieve a system which is clean, safe, secure, reliable, resilient, efficient and sustainable. The smart grid is a modern electrical power grid infrastructure for improved efficiency, reliability and safety with smooth integration of renewable and alternative energy sources through automated control, high power convertors, modern communication infrastructure, sensing & metering technologies and modern energy management techniques based on the optimization of demand, energy and network availability.

One of the integral parts of smart grid technology will be smart devices like the Arduino Uno, which is a very low cost microcontroller board based on the ATmega328. We can design any smart system like home automation system or surveillance system or smart home around Uno using various sensors. In this workshop we will introduce the participant with Uno board, its capabilities, its programming and various sensors/other supporting modules for implementation of smart systems. In the laboratory session each participant will work for a project to design a specific smart system. We will provide Uno board, some sensors and related documentation to each participant so that they can practice it at home/workplace and develop his/her own device/system.

This workshop on “Mini Projects for Deployment of Smart Grid Technology” is a part of one of the capacity building activities of our UWI T&T RDI funded project on “Capacity Building and Research on Smart Grid Technology in the Caribbean Region”.

**Workshop Objectives:**

1. Create awareness about smart grid technology, its benefits and encourage public participation for its deployment in T&T.
2. Capacity building in the area of smart grid technology.
3. Assist CAPE level Electronics, Computer and Physics teachers in developing projects for students.

**Workshop Outline:**

1. Overview of Smart Grid Technology, its benefits and challenges.
2. Introduction to Arduino Uno board, its capabilities and programming.
3. Introduction to sensors and supporting UNO modules.
4. Designing smart systems using UNO for deployment of smart grid technology.

**Target Audience:** The workshop is designed and intended for CAPE level Electronics, Computer and Physics Teachers.

**Number of Participants:** Maximum 25

**Organizers:** UWI, IEEE, BGT&T and Ministry of Education (T&T)

**Registration:** Participant must register using following by 30th March 2015:

<https://meetings.vtools.ieee.org/m/33773>

**Requirements:** Each participant should bring his/her laptop for the Lab. Session and install Arduino software available at:

<http://arduino.cc/en/Main/Software>

**Venue:** Lecture Theater 3, Engineering Block 13, Faculty of Engineering, The University of the West Indies, St. Augustine (building # 73 on map) <https://sta.uwi.edu/resources/documents/sta_map.pdf>

**Parking:** North TGR Car Park (space between Evans St., Agostini St. and University Drive)

**Schedule:**

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| **Time** | **Activity** | **Resource Person** |
| 9.00am | Registration | IEEE Team |
| 9.30am | Welcome Address | Dr. Davinder Sharma, Project Leader, Department of Physics, UWI. |
| 9.35am | Opening Remarks | UWI Administration |
| 9.45am | Introduction to Smart Grid Technology | Dr. Sanjay Bahadoorsingh, Chairman, IEEE T&T Section |
| 10.00am | Exploring Arduino Uno and its applications | Dr. Ajay Joshi, Sr. Lecturer, Dept. of Electrical & Computer Engg. , UWI. |
| 12.00pm | Lunch |  |
| 1.00pm | Lab. Session | UWI and IEEE Team |
| 3.30pm | Closing Remarks | BGT&T Representative |
| 3.40pm | Vote of Thanks | Prof. Patrick Hosein , Dep. of Computing & IT, UWI |

**Contact:** For further information please contact:

Dr. Davinder Pal Sharma

Department of Physics, The University of the West Indies, St. Augustine.

Email: [Davinder.Sharma@sta.uwi.edu](mailto:Davinder.Sharma@sta.uwi.edu)

Office: + 1 868 6622002 Ext. 83105

Mobile: +1 868 7709361

<http://smartgrid.tt>