benefited over 390 scientists, engineers and technicians by building their expertise and capacity to indigenously repair and maintain scientific instruments used in the labs of R&D institutions as well as small-scale industries in their respective countries.

**OBJECTIVES:**

The workshop has the following objectives:

- To demonstrate the process of repairing the defective instruments by the experts;
- To provide hands-on training to the participants for improving their skills for independently maintaining and repairing the scientific instruments;
- To update the participants' knowledge on the latest techniques involved in the operation of scientific instruments;
- To acquaint the participants with the functioning of scientific instruments through need-based training, as well as documentation of the repair and maintenance activities;
- To update the trainees' knowledge on changing and new technologies in scientific equipments;
- To facilitate information-exchange among scientists, researchers, technicians, service engineers, and industrialists for enhancing the existing scientific capacity.

**LANGUAGE:**

The working language for the Workshop will be English.

**WHO SHOULD ATTEND?**

Professional technicians, scientists, researchers and service engineers from academic and research institutions, hospitals and industries of Kazakhstan are encouraged to register for the national workshop.

For more information on the workshop, please visit: [www.comsats.org](http://www.comsats.org), or contact the officials enlisted.

The workshop is being organized within the framework of the EXPO 2017 Astana (Future energy)
INTRODUCTION

Scientific Research and Development activities are the most effective and sustainable tools in achieving long term national economic growth for the developing countries. A large proportion of this research is customarily conducted in the educational and industrial organizations, both in public and private sectors. The pace of research largely depends on the skills of the scientists and technicians, and the availability of well-maintained scientific instruments. In developing countries, lack of planning, in purchase and management of inventories and severe shortage of technical expertise related to repair and maintenance of the same greatly hampers smooth progress of research programmes. In this context, the teaching and research institutions suffer more from delayed research output and the industrial units face production losses.

Unfortunately, the concerned management in most of the developing countries, including Islamic Countries, do not pay enough attention to establish maintenance facilities, resulting in discarding a large number of very expensive instruments and equipment. These losses can be averted by spending a fraction of money on the effective and preventive repair and maintenance processes as compared to the costs incurred due to time losses and procurement of the new instruments and by providing relevant training to the operators, concerned engineers and technicians of such instruments, equipment, etc. There is a great need to develop an indigenous capacity to repair and maintain the scientific equipment in the developing countries, since inviting foreign experts for this purpose is time-consuming and economically unviable. Manpower adept in repairing and maintaining scientific equipments of all sorts used in the teaching and research institutions and industries can ensure uninterrupted research work, and thus lead to an overall socioeconomic development of a country.

To enable Islamic countries to achieve technological self-reliance in setting up of repair and maintenance facilities and to reduce technological dependence on foreign experts, national training workshop is being organized by the Commission on Science and Technology for Sustainable Development in the South (COMSATS); in cooperation with Islamic Educational, Scientific and Cultural Organization (ISEESCO); and Al Farabi Kazakh National University (KazNU), Kazakhstan. The national workshop entitled “Repair and Maintenance of Scientific Engineering Equipment in Universities, Research Institutions and Small Scale Industries” will take place in Kazakhstan, from October 2-6, 2017. The Workshop is intended to highlight the issues/problems related to the maintenance of scientific engineering equipments used in universities, research institutions and small scale industries. Two experts from Pakistan would provide hands-on training to the participants of the workshop for upgrading their skills and enhancing their capacities in repairing, maintaining and troubleshooting important scientific engineering equipments in their organizations. The workshop encompassing interactive lectures and practical training is a part of the COMSATS-ISEESCO series, under which similar events were held in Nigeria (2016), Ghana (2013 & 2015), Oman (2015), Iran (2014), Sudan (2013, 2005 & 2004), Tunisia (2012), Egypt (2011), Senegal (2010) and Syria (2005). These workshops have

REGISTRATION FORM

Name ______________________________

Designation _________________________

Institution/Organization _____________________

Highest Academic Qualification _________________________

Postal Address __________________________________________

City ________________ Country ____________________________

Tel.__________________ Fax _______________________

Email ______________________________

Signature ____________________________

Date ________________________