



Teacher Training Program at STEAM Competition Awards Ceremony

January 27th, 2023

1. About the Khwarizmi Science Society

The Khwarizmi Science Society (KSS), founded in 1997, is a registered not-for-profit association popularizing science and technology at grassroots levels in Pakistan. To date, KSS has curated hundreds of public lectures, science roadshows, astronomy festivals, outreach events, teacher training programs, and workshops. The diverse portfolio of its activities can be browsed at: www.khwarizmi.org.

KSS has organized the 2009 *falakyati melas* (Astronomy Festivals), the 2016 National Science Movement, and hundreds of science outreach activities. KSS has also published extensive work in the local press, created scientific literacy in Pakistan, and touched the lives of thousands of eager science learners. The flagship activity of KSS is the annual Lahore Science *Melas* that have emerged as the largest citizen science festivals of country. The recent-most *Mela* was held in October 2022 and welcomed over 50,000 visitors and 300 exhibitors. The website for the the Lahore Science *Mela* movement is: www.kssism.org.

2. Proposed Activity Outline of the Teacher Training Program

KSS will deliver two teacher training programs in Islamabad with the support of PAMS and STEAM. The intended audience for the workshop is government middle school science teachers. The sessions will be led by Dr. Muhammad Mustafa and Mohsina Asif whose biographies are attached in the **Appendix**. The *proposed* schedule and outline of this activity are given below.



Title of the Program:

Curiosity-awakening teacher training workshop

شوق آور سائنسی تدریس

Session 1

Topic: - Agenda-based Science Communication in classroom
- Integration of advanced teaching modalities

Trainer: Dr. Muhammad Mustafa

Abstract:

Dr. Muhammad Mustafa will talk about how we perceive new knowledge, types of learners, components of an active classroom, and how we can amalgamate experiments to achieve learning objectives. The audience will experience **live demonstrations** and hands-on exercises of different academic teaching situations to brainstorm and evaluate their knowledge dissemination methods.

The best practices and skills we came across during the pandemic as teachers will also be shared. Use of different online resources in physical classrooms to boost students' learning experience will also be focused on. A practical demonstration of a smart classroom with integrated online resources will be conducted for efficient learning. Khwarizmi Science Society will bring the appropriate experimental setups for the participating groups.

Session 2

Topic: Communicating science inside and outside classrooms

Trainer: Ms. Mohsina Asif

Abstract:

Representative of Khwarizmi Science Society, Mohsina Asif will walk the audience through the necessity, methods, and impact of science communication and journalism. The session will motivate the need for science communication in Pakistan and provide an overview of different methods of effective science communication with a special focus on using experiments and demonstrations to convey scientific concepts. Considering examples from around the world, potential of science communication in Pakistan will be explored in depth with an introduction to the role some non-profit outreach organizations are playing in shaping the narrative of science communication in the country. The teachers will also be given an introduction about how they can participate in the citizen science festival movement (Lahore Science Mela) and how they can start building their own projects.



Appendix

Biographies of KSS Lead Trainers

Lead Trainer: Dr. Muhammad Mustafa

Dr. Muhammad Mustafa is an Assistant Professor, at KAM-School of Life Science, Forman Christian College (A Chartered University), Lahore. He is working on breast cancer and its potential relation with emotional stress. He is the member of supervisory committee set up by federal government for single national curriculum. He has contributed in developing online teaching modalities, specially the concept of smart classroom during covid pandemic at various higher education institutes in Philippines. He is also an Executive Member of the Khwarizmi Science Society which is focused on the popularization of science at the grassroots levels.



Trainer: Mohsina Asif

Mohsina Asif is a mechanical engineering graduate from UET Lahore and currently works as a Research Associate/Application Engineer at the Department of Physics, LUMS. For more than 7 years, she has also been involved in several science communication and journalism activities. She is the Science Communicator (and projects coordinator) of Khwarizmi Science Society, the oldest non-profit science popularization movement of the country and has also been a crusading force in the establishment of Spectra, a student-powered online science magazine. Recently, Mohsina helped organize the Lahore Science Mela 2022 that was the largest citizen science festival of Pakistan,

