

## **Establishment of Space Education Research Lab (SERL): A novel initiative for promoting space science, technology and its applications in Pakistan**

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The Space Education Research Lab (SERL) a specialized research lab housed at the Institute of Space Technology (IST) in Islamabad, Pakistan, is a constituent Lab of the National Center of GIS & Space Applications. Developing nations face significant hurdles in achieving the UN SDGs through space technology due to the lack of specialized degree programs, human resources, academic materials, and career clarity in this field. To overcome these obstacles, need assessments were conducted for all age groups, and interactive teaching methodologies needed to be developed. SERL's purpose is to develop specialized human resources in the field of space science, and technology and its Applications for the socio-economic growth of Pakistan through increased awareness and education. The lab has two application domains: Space Awareness and Outreach, and Education and Training. Under the Space Awareness and Outreach domain, SERL conducts several activities, including World Space Week celebrations, Space Summer School, Dr. Abdus Salam Space Contest, and Space Awareness Visits and Destination Space Schools across Pakistan. These initiatives aim to increase awareness of space-related activities among the general public and students. In the Education and Training domain, the lab provides specialized training, and workshops targeting students, teachers, and professionals in the field of space science and technology. The lab also develops space-related books for children, websites, and applications for space enthusiasts. The outputs of SERL include the development of specialized human resources in space science and technology, creation of effective knowledge-based awareness, and opening new doors for innovation and application development leading to a better and sustainable lifestyle for the general public. Additionally, SERL inspires young aspirants to join the profession of space science and technology, creating a passionate, dedicated, and talented workforce. SERL is a pioneering initiative in Pakistan to increase awareness and education in the field of space science and technology, and an essential step towards developing specialized human resources for the socio-economic growth of the country. The lab strives to engage the general public, students, and professionals in the field of space science, technology, and its applications, creating a unified effort at the national level.

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