

# ***5 Days Workshop on Designing GUI and Optimization by using MATLAB & SIMULINK***

**Dates:** *To be decided on mutual consensus*

**NOTE:** The workshop is planned to be conducted on your proposed venue. For further details contact instructor



Institute of Space Technology  
Islamabad, Pakistan

## **About IST**

A gateway to academic and professional excellence, we welcome you to the Institute of Space Technology - a federally chartered degree awarding institute. The undergraduate engineering programs offered are approved by the Higher Education Commission as well as The Pakistan Engineering Council. Besides undergraduate programs, IST offers short courses, workshops, seminars and Graduate Programs including linked programs in collaboration with foreign universities in hosts of discipline, providing a solution to earn a foreign degree economically.

We offer world class programs and teaching, supported by experienced faculty and state-of-the-art facilities. Our aim is to provide the best training facilities that will enable our students to acquire hands-on experience, an acute requirement in the professional world. With that in mind, our notable achievements over the past years have been the up gradation of the Experimentation & Research facilities. Subsonic & Supersonic Wind Tunnels, CAD/CAM Lab, Controls Lab etc. have been set-up. IT facilities have been further enhanced with the addition of computers and broad band internet accessibility.

During your interaction with us through the workshop or otherwise, you will meet intellectual challenges, develop invigorating ideas and brace tough competition. Let IST foster you to become a better professional and leader in different areas.

## **Introduction**

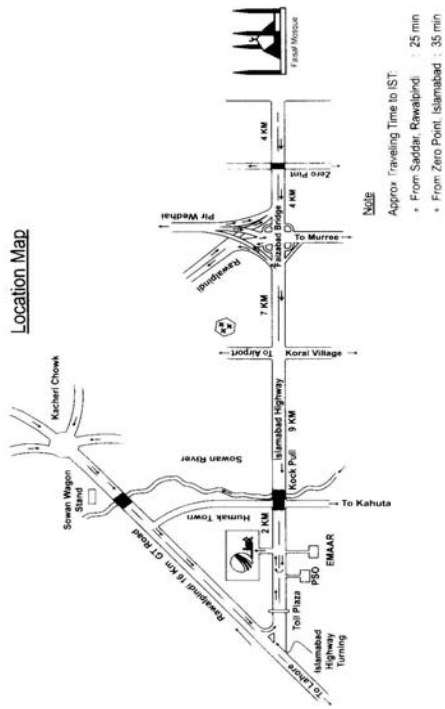
Optimization of any process, system and design is required for best performance. There are many ways to optimize any process, system and design. The proposed workshop discusses the genetic algorithm and its implementation on some process by using MATLAB. Beside this, designing a Graphical user interface is also subject of the workshop which will help in displaying any kind of results, output and input and handling any kind of process and system. MATLAB and SIMULINK has become the language of Mathematicians and Engineers/Scientists.

## **Workshop Objectives**

The workshop is designed for the Beginners to advanced level professionals/students. After completion of the workshop the participants will have a clear understanding of optimization and its utility, how to optimize any problem by using MATLAB, How to design a GUI for handling and working on any system and process etc.

## **Workshop Content** (Detailed contents are attached separately)

1. Introduction and theory of Optimization, GA
2. Optimization Techniques
3. Genetic Algorithm, PSO and other Optimization Tool boxes of MATLAB
  - i. Block diagram
  - ii. Algorithm
  - iii. MATLAB facility
  - iv. Problem statement
  - v. Function
  - vi. Interpreting results
4. Handling graphics in MATLAB
5. GUI designing in MATLAB
6. GUI applications



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## **Who Should Attend?**

Engineers, Mathematicians, Physicists, Researchers, Programmers, Scientists, Developers who are involve in modeling & simulation of engineering problems, controller designing and analyzing, GUI designing, optimization of engineering problems or dealing QA part of all above.

## **Duration**

05 days  
 (Min 05 hrs daily)

## **Timings** (Timing May be adjusted for RAMDAN accordingly)

### **Monday ~ Thursday**

0900 hrs ~ 1100 hrs (1<sup>st</sup> Session)  
 1100 hrs ~ 1130 hrs (Break)  
 1130 hrs ~ 1300 hrs (2<sup>nd</sup> Session)  
 1300 hrs ~ 1400 hrs (Break)  
 1400 hrs ~ 1530 hrs (3<sup>rd</sup> Session)

### **Friday**

0900 hrs ~ 1100 hrs (1<sup>st</sup> Session)  
 1100 hrs ~ 1130 hrs (Break)  
 1130 hrs ~ 1300 hrs (2<sup>nd</sup> Session)  
 1300 hrs ~ 14300 hrs (Break)  
 1430 hrs ~ 1600 hrs (3<sup>rd</sup> Session)

## **Fee** (Includes Workshop material)

Rs. 12,000/- (Per Person)  
 (Min number of participants 12)

## **Instructors' Contact Information**

### **Mr. Abdul Waheed**

Asst Prof. (A&A Dept.)  
 Institute of Space Technology  
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### **Mrs. Amena Ejaz**

Lecturer (CSE Dept.)  
 Institute of Space Technology  
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## **About the Instructors**

Mr. Abdul Waheed, is a full time faculty member of A&A Department. His area of expertise includes designing & analyzing the control systems, modeling & simulation, optimization and Graphical User Interface (GUI). He has variety of experience in using MATLAB and SIMULINK for different engineering problems. He has conducted many semester courses short courses and workshops for students and professionals of different organizations.

Mrs. Amena Ejaz, is a full time faculty member of CSE department. She has been teaching different lab sessions, short courses and workshops on MATLAB and SIMULINK for the students and professionals. She has a valuable experience in modeling and simulation of different engineering problem in MATLAB and SIMULINK.

## **About the Workshop**

After successful conduction of series of short courses on MATLAB and SIMULINK, it is being urged that similar kind of workshops may also be organized for different organizations at their proposed site so that maximum number of participants from organization can learn as per its requirements. The workshop is unique in its nature and covers a range of topics and applications in different fields of engineering. The discussions during the workshop will be open and each member will be given chance of practice so that every one can have hand on experience during the workshop. The topics and discussions are very much open and flexible to meet individual requirements. The workshop will be very much interactive and fruitful for the participants of different fields.