RASTEK TECHNOLOGIES, A REPUTABLE ENGINEERING COMPANY IS OFFERING PRACTICAL ORIENTED SHORT COURSES IN MATLAB, MICROCONTROLLER PROGRAMMING, IMAGE PROCESSING, INFORMATION SECURITY, C PROGRAMMING WITH HARDWARE, LABVIEW, etc.

FOR COURSE DETAILS & ONLINE REGISTRATION PLEASE VISIT:
http://www.rasta.edu.pk

ATMEGA8 AVR MICROCONTROLLER PROGRAMMING IN C
The 8051 is quite old now. Learn to program the ATMEL’s (www.atmel.com) ATMEGA8 microcontroller that is easy to use and yet can perform from very simple to complex tasks.

All you need is a PC and only Rs. 300/- to start your own ATMEGA8 environment at home. We shall teach you C and AVR programming to undertake simple and complex projects.

Brief Outline
- AVR microcontroller family and core architecture. Hardware details and pinouts.
- Overview of C language; fundamental concepts and important commands for AVR microcontroller.
- AVR software development tools, downloading C programs into the AVR microcontroller chip.
- I/O ports system and programming. Reading and writing digital data through the I/O ports.
- Introduction to serial communication. AVR USART programming for asynchronous transmission.
- Serial communication between AVR chip and PC (running MATLAB) for graphical analysis and control.
- Programming AVR built-in ADC and its interfacing. Interfacing a DAC with the AVR chip.
- Designing a microcontroller-PC based temperature monitoring and control system.
- AVR timer/interrupt programming, pulse counting and data transmission to MATLAB for graphical analysis.
- DC motor speed monitoring and control. This can either be a stand alone or an AVR-PC based system.
- Solving higher order differential equations in the AVR chip, PID controller implementation.

MATLAB/SIMULINK PROGRAMMING + HARDWARE INTERFACING
In depth MATLAB programming. SIMULINK, GUI development, serial and parallel port interfacing, microcontroller interfacing, LTI system analysis, image processing, etc.

Brief Outline
- Basic introduction, overview of MATLAB/SIMULINK product family and toolboxes.
- MATLAB desktop, variables, arrays, structures, strings, relational and logical operations.
- Control flow, matrix computations, plotting, writing M-files and M-functions.
- Implementation code of first, second and higher order LTI system for embedded targets.
- Serial Port/Parallel port overview, pin assignments, data format.
- Creating serial port objects in MATLAB, setting communication configuration.
- Serial port interfacing between PC (running MATLAB) and the AVR microcontroller.
- Parallel port interfacing between PC (running MATLAB/SIMULINK) and the AVR microcontroller.
- Introduction to image processing toolbox, image formats, read/write and formatting images.
- Image operations in spatial/transform domains, image partitioning and block processing.
- Development of Graphical User Interface (GUI).
- SIMULINK basics, creating a model, working with block sets.

Course Duration & Timings
25 HOURS (4 HOURS/WEEK), 7pm-9pm OR Sunday 9am to 1pm

Course Fee
Rs. 6000/-

Venue and Registration
Contact: Mr. A Fawad. Ph: 0321-2254956, 4993810. Email: fawad@rastek.com.