

Bharatiya Vidya Bhavan's



e-Prayog

Virtual Labs (Electronics),
Wadhvani Electronics Lab,
IIT Bombay



*An initiative of Ministry of Human Resource
Development (MHRD) under the National Mission
on Education through ICT*

*Two day workshop on
Modern Digital Design
and
Embedded Systems
On
1st & 2nd March 2014*

Organized by
Sardar Patel Institute of Technology
Andheri (West), Mumbai – 400058

in association with,

**e-Prayog, Virtual Labs (Electronics),
Wadhvani Electronics Lab,
IIT Bombay,
Mumbai – 400076**

Workshop details

Venue of the Workshop

Sardar Patel Institute of Technology

Bhavan's Campus, Munshi Nagar,
Andheri (W),
Mumbai 400058
Tel: 91-22-2670 8520, 26707440, 2628 7250
Fax No.: 91-22-26701422
www.spit.ac.in

Course coordinator (S.P.I.T.)

Dr. Y. S. Rao
Vice-Principal,
Phone: 26707440/26708520 Extn. 380
Mob: 09820962870
ysrao@spit.ac.in

Course coordinator (IIT Bombay)

Ms. Madhumita Date
Project Manager, e-Prayog,
Wadhvani Electronics Lab,
IIT Bombay
098199688511

Who should attend?

A team consisting of a faculty member and two students from T.E (EXTC/Elect/Inst/COMP/IT) can register for the workshop. Only one such team is allowed from each department.

Course Fee

Rs. 300/- per participant (Rs. 900/- per team) which includes course material, working lunch and refreshment. TA/DA will not be reimbursed.

- Cheque/D.D drawn in favor of "S.P.I.T – F.E.T.S" and payable at Mumbai should reach us on or before 28th February 2014.
- Fees can be paid by cash by depositing it directly with course coordinator (S.P.I.T) on or before 28th February 2014.

Teaching Faculty

e-Prayog team from Wadhvani Electronics Lab,
Department of Electrical Engineering, IIT
Bombay.

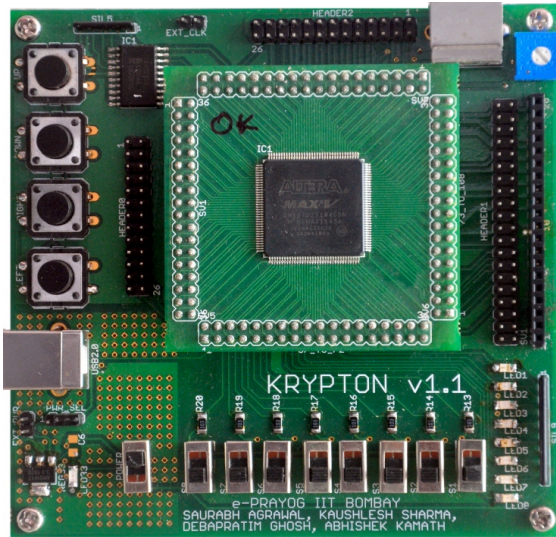
About the workshop

The objective of this workshop is to give hands-on experience to the participants on implementation and verification of logic design using the "Krypton" a CPLD board based on MAX-V and "Aurum", a microcontroller board based on PIC 18F4550 designed and developed by e-Prayog.

The boards are also suitable for final year B.E project work.

The workshop will be held in two parallel sessions.

Krypton



Board features

- Based on Altera MAX-V
- Device used on board: 5M1270 (1270 logic elements)
- Powered and Programmed through USB. It can also be powered externally.
- 8 input switches and 8 outputs LEDs onboard.
- 88 user configurable I/O pins for interfacing to external circuitry.
- Onboard clock of 1Hz and 50 MHz and External clock input.
- 4 push buttons with hardware debounce.

Aurum



Board features

- Based on PIC 18F4550 microcontroller
- Powered and programmed through USB
- On-board provision to directly interface switches, LEDs, 16x2 character LCD etc
- on-chip UART, SPI, I2C, ADC, streaming parallel ports
- 31 on-board general-purpose I/Os are available
- Uses Microchip MPLAB IDE (free version) Microchip HID Bootloader for ISP (free)

e-Prayog Competition and Exhibition

Each team will be provided with one kit as part of the workshop. Students are expected to develop a project based on this board. The faculty will mentor these projects. A competition cum exhibition of these projects will take place in the first week of July 2014 at S.P.I.T. The best five teams will get an opportunity to work on more advanced platforms during summer vacation of this year at IIT Bombay. The colleges will also get ten more Krypton boards free of cost for their lab use so that this activity continues in their colleges.

Registration

For registration, please mail scanned copy of the duly filled registration form on or before 28th February to ysrao@spit.ac.in.

Workshop Schedule (Modern Digital Design)

Day-1 (01.03.2014)	
8.30 am	Registration and Inauguration
9:00 am	Introduction to e-Prayog, IIT Bombay
10.30 am	Introduction to Reconfigurable Design Introduction to Quartus- II
2.00 pm	Lab session: <ul style="list-style-type: none"> Implementation of Serial Adder Implementation of Binary Counter
3:45 pm	Lab session: <ul style="list-style-type: none"> 4:1 MUX and 3:8 Decoder Implementation of BCD Counter 8 bit Multiplier
Day-2 (02.03.2014)	
9.00 am	Lab Session: (Interfacing Experiments) <ul style="list-style-type: none"> Tone Generator Interfacing 16X2 Character LCD Interfacing PS2 & VGA Monitor
2.00 pm	Lab Session: (Design a small system) <ul style="list-style-type: none"> Interfacing ADC Interfacing DAC Interfacing temperature sensor and displaying the temperature on LCD
4.45 pm	e-Prayog Competition cum Exhibition Theme Discussion

Workshop Schedule (Embedded Systems)

Day-1 (01.03.2014)	
8.30 am	Registration and Inauguration
9:00 am	Introduction to e-Prayog, IIT Bombay
10.30 am	Introduction PIC architecture Using Microchip IDE
2.00 pm	Lab session: <ul style="list-style-type: none"> Familiarization experiment setup Getting started with PIC 18F4550
3:45 pm	Lab session: <ul style="list-style-type: none"> LCD interfacing: Display the contents of PIC registers on the liquid crystal display
Day-2 (02.03.2014)	
9.00 am	Lab session: <ul style="list-style-type: none"> Timer applications Hex Keypad interfacing
2.00 pm	Basics of embedded C: Short introduction Lab Session: <ul style="list-style-type: none"> Interfacing ADC using SPI Interfacing temperature sensor and displaying the temperature on LCD
3.45 pm	Lab Session: <ul style="list-style-type: none"> Interfacing RTC using I2C
4.45 pm	e-Prayog Competition cum Exhibition Theme Discussion

Registration Form

Name of the Institute: _____

Name of Student 1: _____

Name of Student 2: _____

Name of the teacher: _____

Experience of teaching microcontrollers/
digital design _____ years

Institution: _____

Address: _____

Email: _____

Tel: (O) _____ (Extn.) _____

(M) _____ (R) _____

Payment by Cash / Cheque / DD:

Chq. /DD No: _____ Dated: _____

Bank: _____

Amount: _____

Signature of student 1:

Signature of student 2:

Signature of teacher:

Forwarded through Head of the Institute/Dept:

Signature:

Name:

Seal of the institute