



DOEACC CENTRE CALICUT
COURSE PROSPECTUS

CDS/CA/7.5.1/F 40/R0

Name of the Group: **PEG**

Name of the Course: *Certificate course in Hardware System Design*

Course Code: **PD501**

Starting Date: **1st February 2011**

Duration: **8 weeks**

Preamble: To become a professional designer one should have the requisite knowledge, and the skills for applying this knowledge to solve real life problems. Acquiring these skills along with your regular degree will help you become industry ready and brighten your chances of getting better placement.

Objective of the Course: The course is designed to bridge the gap between the academia and the industry requirements to make the fresh graduates/diploma holders industry ready. This course helps you to learn the skills you need to become a professional hardware system designer covering the areas like design and development of micro controller based applications, EDA Tools, and design and development of power converters and related applications.

Outcome of the course: After completing the course the participants will be able to design and develop complete 8051 microcontroller based system including the software that goes into it. The participant will get an exposure in the usage of EDA tools and other design and development tools and will be able to understand the design and development of power converter and related applications.

Course structure: The Course starts with basic electronics, and gradually takes you through the use of test and measuring instruments, PCB design and fabrication process, use of EDA tools, X51 mC architecture, instruction set, embedded programming, RTOS concepts, interfacing LCDs, Key board, ADC/DAC, RTC, EEPROM etc. Power electronics module covers various aspects of power applications design starting from selection of power semiconductors, design of drive circuits, design and selection of power converter topologies, inverter/ UPS, battery chargers and industrial drives. The course ends with a mini project to practice the skills you have learned.

Other Contents

- a. **Course Fees :** ` 20,000/- (including service tax @10.3%)
- b. **Eligibility :** Students with BE/B. Tech./Engineering Diploma in Electronics Electrical/Instrumentation / M. Sc./B. Sc. (Electronics) are eligible.

Candidates who have appeared in the qualifying examination and awaiting results may also apply. Such candidates shall be awarded the certificate only after successful completion of the course as well as on production of the degree or provisional certificate and complete mark list.



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On the date of counseling/admission, he/she must produce the original mark lists up to the last semester/year of examination.

c. **Number of Seats : 20**

SC/ST candidates whose total annual family income is less than one lakh can avail concession of 25% of the course fee.

d. **How to Apply :**

Students are advised to apply in the prescribed Application Form available with the course brochure/course prospectus or downloaded from our website. Filled in application forms along with a Demand Draft towards advance fee of ₹1000/- drawn in favour of Director, DOEACC Centre, Calicut, Payable at State Bank of India, NITC Branch, Chathamangalam should be sent to the Training Officer, DOEACC Centre Calicut, P. B. No. 5, NIT Campus Post, CALICUT – 673 601, Kerala. The Name of the Course applied, should be super scribed on the envelope, in which the application form is forwarded.

e. **Selection of candidates:**

Selection of candidates will be based on their marks in the qualifying examination subject to eligibility and availability of seats. Selection of candidates who have completed the course but expecting the results shall be based on aggregate of the marks obtained up to the period for which results are declared subject the availability of seats. The list of selected students shall be published in our website.

The list of Provisionally Selected Students will be published in our website www.doeaccalicut.ac.in on 25th January 2011. Individual call letters by **email alone** will be sent to the candidates. The student has to confirm participation on or before 28-Jan-2011 by email.

The admission to the course shall be based on the following criteria:

1. Should have passed the eligibility criteria as mentioned above.
2. All candidates who are provisionally selected have to pay the full course fee (₹20,000) latest by the date of admission through DD or direct payment into our account from any bank where core banking facility is available.

The different Modes of Payments are detailed in the link <http://www.doeaccalicut.ac.in/course/calendarCEDTL.asp> The proof of remittance of the fees by selected candidates shall be sent to trng@doeaccalicut.ac.in. The original receipt/counterfoil/Chalan/DD has to be submitted at the centre as a proof of payment at the time of counseling.

3. The details required for direct payment are as given below.

Current Account No: : 010401158037

Bank Name : SBI, CNIT Chathamangalam

Bank Code : 2207



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IFS Code : SBIN0002207

The depositor should obtain the **UTR Number** from the branch while depositing cash directly into our account. Depositor should also obtain the acknowledgement duly filled up and signed by the staff of the bank through which the amount was deposited. UTR number should be mentioned in all the correspondences to us pertaining to amount.

- f. **Test/Interview (if applicable) :N/A**
- g. **Counseling:** 1st February 2011
- h. **Admission Procedure:** The list of Provisionally Selected Students will be published in our website www.doeaccalicut.ac.in on 25th January 2011.

All Candidates who have been provisionally selected for the course are required to report at the Centre on the prescribed day by 9:30 hrs for counseling and admission along with the following documents

1. Attested Copies of Proof of Age (10th), Qualifications (BTech/MSc etc)
2. Original Certificates of the above (Provisional/Degree & Mark list)
3. Two copies of passport size photograph and one stamp size photograph
4. SC/ST Certificate in English/Hindi (if applicable)
5. Income Certificate English/Hindi (if applicable)

The candidates on reaching the Centre are required to meet the Front Office Counselor (FOC). The FOC then directs the candidates to the Course Coordinator. The candidate gets the enrollment form and certificates verified by the Course Coordinator. The selected students will then have to meet the FOC along with the enrollment form, who shall direct the student to the Accounts. The candidates are required to produce the original receipt/counterfoil/chalan as proof of fee payment at the accounts and get the fee receipt issued by the concerned authority. A student is thus admitted and can attend the classes.

- i. **Discontinuing the course:** No fees under any circumstances shall be refunded in the event of a student discontinuing the course. Certificates will be issued to the successful candidates at the end of the course by post.
- j. **Course Timings:** This program is a practical oriented one and hence there shall be more lab than theory classes. The classes and labs are from 9.30 am to 12.45 pm and 1.45 pm to 5.30 pm Monday to Friday. During project work, the timings are from 9.15 am to 5.30 pm.
- k. **Location and How to reach :** DOEACC CENTRE Calicut is located very near to NIT (REC) Campus and is about 22Kms from the Calicut (Kozhikode) city. A number of buses [Buses to NIT via Kunnamangalam] are available from "Palayam Bus Stand or KSRTC Bus Stand". Our stop is called "Panthrand" & is one stop before NIT. The bus fare is currently Rs.10.50 from



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Calicut City to DOEACC Centre. Calicut (Kozhikode) is well connected by Rail, Road and Air from different parts of the country.

l. Course enquiries :

Students can enquire about the various courses either on telephone or by personal contact between 9.15A.M. to 5.15P.M. (Lunch time 1.00 pm to 1.30 pm).

Telephone Numbers: Office 0495 - 2287266 / 2287268

Director's Office 0495 - 2287123

Training Officer 0495 - 2287266

Course Coordinator 0495 - 2287179 (Ext. 224)

Office Fax 0495 - 2287168

E-mail: trng@doeaccalicut.ac.in

Website: www.doeaccalicut.ac.in

m. Important Dates:

a. Last date to submit the application form: 24-Jan-2011

b. Selection Intimation in the web site: 25-Jan-2011

c. Confirmation by candidate: 28-Jan-2011

c. Counseling/Admission : 1-Feb-2011

d. Payment of fees/ Caution deposit: 1-Feb-2011

e. Commencement of classes: 1-Feb-2011

n. **Placement :** Placement support will be provided.

o. Hostel Facilities:

Hostel accommodation is available for boys and girls on daily or monthly chargeable basis. The hostel fee varies from 450/- to 1050/- per month depending on the location of accommodation and facilities. However, students are required to pay the hostel fees for the duration of the course for which they are seeking admission at the time of joining the course.

p. Canteen Facilities:

The Centre has a canteen functioning at the main campus and food at reasonable rates is available for breakfast, lunch, and dinner.

q. Lab Facilities:

EDA tools (OrCAD/Mentor Graphics)

Project Management Software

Scope Meter, Power Meter

Power scope, DSOs, DMMs

Networked Pentium PCs with 2MBPs internet connectivity

Emulators & simulators for 8051, PIC etc.

Cygnal EVM for application development

Keil 51/SPJ Software Development tools

HiTech C enterprise edition

MPLAB ICD2 in-circuit programmer and debugger

Universal Programmer

Logic probe, logic pulser, current tracer

Microcontroller prototype boards

DSOs, DMMs etc.



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ABB AC and DC drives
Mentor Tools PCB & PADS
Allen Bradley Power Flex40 AC Drive
Motor Control Development Board (DSPICDEM MCI)
PICO Controller

r. **Course Contents :**

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|--|----------------|
| Basic Electronics | 1 day |
| Linear ICs, OP Amp
Op AMP Applications
Application of transistors & Diodes, Relays usage, Transducer | |
| Test and Measurement Instruments | 1 day |
| Digital Multimeters
Oscilloscopes
Function Generators
Logic Probes
Power Meters
Current Probes | |
| EDA Tools | 3 days |
| Printed Circuit Boards
Classification of PCBs
PCB Terminology
Schematic Design
Design rules
Layout design of PCB
Routing Strategies
Package: Orcad/Mentor Graphics | |
| Mirocontroller & Peripheral Interfacing | 10 days |
| Intel 8x51 Architecture and Instruction Set
Embedded C, RTOS concepts
Peripheral Interfacing – LCD, Keyboard, LEDs/ Buzzer/Relays
7 Segment LED, ADC, DAC, Serial Port, EEPROM, RTC | |
| Lab sessions/Assignments based on Keil C/Proteus | |
| Power Electronics | 10 days |
| Power Semiconductor Devices
Driver Circuits
Converters
Inverters
Transformers
UPS Topologies
Batteries & Chargers
AC & DC Drives | |