



B-30, Institutional Area, Sector-62,
NOIDA – 201 307
ISO 9001:2008 COMPANY



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POST GRADUATE DIPLOMA IN EMBEDDED SYSTEM & VLSI DESIGN

Last date for submitting Application Form:
9th July 2010
Date of Entrance Exam:
17th & 18th July 2010
Date of Result Declaration:
21st July 2010

Last Date of Payment of 1st installment of fees for
selected candidates: **27th July 2010**
Last Date of payment of 1st installment of fees for
waitlisted candidates: **29th July 2010**
Commencement of Course: **2nd August 2010**

CDAC PROFILE

C-DAC, Noida was established with the mandate to undertake and promote State-of-the-Art Scientific Research & Development of electronics, and to design & develop Electronics Equipment and Systems for the growth of Electronics Industry. The main focus and objective of the organization lies in the development of High skill manpower in various platform of IT industry through HRD activities, transiting the goal of Ministry of Information Technology, Government of India, to bring fruits of Information Technology to every walk of life.

C-DAC, Noida conducts and concentrates on high-end training in Information Technology and other emerging related areas at Post Graduate Levels (Formal & Non-formal), which should provide the basis for sustainable growth and high value added employment to multi-talented I.T. personnel.

PGDEVD - Objectives And Focus Areas

The Post Graduate Diploma in Embedded system and VLSI Design is a six months (**24 weeks**) full time programme aimed at training engineers from the field of Electronics/Electrical/Computer science / Instrumentation. The programme has two main stream i.e. in areas of Embedded Technology and VLSI Design comprising of 8 main modules. Embedded System Design module will focus on Software Programming, Micro-controller Programming and Embedded Programming in Real Time System, where as VLSI Design Module focus on HDL Programming, FPGA and Synthesis with full custom ASIC Design using EDA tools. This programme will also extend emphasis on various domains e.g. Telecom, e-Security etc. by means of developing application as well as expert sessions from industry.

This unique combination of technologies broadens the scope for the budding engineers. The course is designed with equal emphasis on hardware and software catering to the demands of the industry.

FACILITIES AT CDAC NOIDA :

State-of-the Art Infrastructure, Well-equipped Library with access to International Journals, WiFi Network, Industry focused curriculum and Course Contents leading to International Certification, Creative cum learning work environment, Active placement cell, Experienced and resourceful faculty, Close and constant contact between faculty and students.

ELIGIBILITY CRITERION

- B.E / B.Tech., ME / M. Tech . or equivalent in Electronics/Electrical/Electrical & Electronics/Computer/Electronics and Telecommunication/ Instrumentation and M. Sc (Electronics)
- Students appearing for the final year examination are also eligible.
- Candidates should have minimum 60% in last qualifying degree. Also Candidates should not have less than 60% in more than one of the academic qualifications. Candidate who have less than 50% in any of the qualifications are Not Eligible. Students who have appeared for final semester Examinations are also eligible for this course.

PLACEMENT CELL

Co-ordinates the task of organizing Campus Interview for the students just before the completion of the course in order to help them to secure attractive jobs. The candidates should keep in mind that selection will depend on the selection criteria and qualitative requirements of the company and the placement cell has no say on the recruitment policy and process of the company visiting the campus. Brief list of companies that visited CDAC, Noida are Wipro, HoneyWell, Satyam, Perot Systems, MBT, IBM, Bharti TeleSoft, Samsung, Network Programs, Quark, NetSys Software, PI Softech etc. Candidates of this programme have got 100% placement opportunities in previous years.

EMBEDDED SYSTEMS DESIGN MODULES		VLSI DESIGN MODULES	
FUNDAMENTALS OF SOFTWARE PROGRAMMING <u>Object Oriented Programming with C++</u> <ul style="list-style-type: none"> • Introduction to C++ programming language • Concepts of OOPS • Classes and objects • Inheritance • Static and dynamic polymorphism • Files and streams 		HDL PROGRAMMING <u>VHDL</u> <ul style="list-style-type: none"> • Basic Language Elements • Behavioral Modeling • Data flow modeling • Structural modeling • Generics & configuration • Subprogram and Overloading • Packages and Libraries • Verification, Writing Test Bench 	
<ul style="list-style-type: none"> • <u>Operating System Concepts</u> • Process Management, Scheduling algorithms • Concurrency of processes and mutual exclusion • Memory Management – Paging & Segmentation • File Management 		<u>VERILOG</u> <ul style="list-style-type: none"> • Intro. to Modeling Styles in Verilog • Compiler Directive, Data Types & Operators • Gate Level, Data Flow & Behavioral Modeling and structure Modeling • Task & Functions • Verification, Writing Test Bench • Switch Level Modeling and UDP • Basics of System Verilog • System Verilog data types, Structure etc. 	
<ul style="list-style-type: none"> • <u>Software Engineering concepts</u> • Software Development Life Cycle • Analysis Design & Activities • Testing and Debugging 		FPGA & SYNTHESIS <ul style="list-style-type: none"> • Logic Synthesis • Introduction to logic synthesis • Technology mapping • Adding design constraints • Reporting to timing, area, fan-in & fan-out through logic synthesis 	
EMBEDDED PROGRAMMING USING MICROCONTROLLERS <u>8bit Micro-controller programming</u> <u>32 Bit Micro-controller Programming Using ARM</u>		FPGA BASED DESIGN <ul style="list-style-type: none"> • Introduction to FPGA architecture • FPGA Design Flow • Logic Synthesis & Implementation • Advanced Design Performance 	
<ul style="list-style-type: none"> • Introduction to Micro-controllers. • AVR AT90S 8515 Processor Architecture. • Instruction Set. • Interfacing Hardware to the AVR • LED Switches ADC, DAC, Serial Port Interfaces. 		<ul style="list-style-type: none"> • Design optimization • Back annotating timing & parasitics 	
<ul style="list-style-type: none"> • Introduction to 32-bit micro controllers • ARM Instruction Set • The ARM GNU Tools and ARM Developer Suite • Overview of ARM and Thumb Instruction Sets • Architectural Support for High-level languages • AMBA • ARM MMU architecture 		SPICE SIMULATION <ul style="list-style-type: none"> • Design Flow • Introduction to SPICE • Circuit descriptions • DC Circuit analysis • Transient analysis • AC circuit analysis • Semiconductor Devices • Schematic Capture, Spectre simulation 	
EMBEDDED PROGRAMMING IN REAL TIME			
<u>Linux systems programming</u> <ul style="list-style-type: none"> • The Linux Kernel in detail • Unix File API • Unix Process API • Inter Process Communication • Multithreading • Network Programming in Linux using sockets. 		<u>Real Time OS</u> <ul style="list-style-type: none"> • RTOS Concepts • Introduction to RTLinux/ Monta Vista • IPC in RTLinux/ Monta Vista • Programming API of RTLinux/ Debugging 	
		<u>DD Programming</u> <ul style="list-style-type: none"> • Kernel configuration (adding modules) • Building character drivers • Debugging techniques • Interrupt Handling 	
		ADVANCED DIGITAL DESIGN <ul style="list-style-type: none"> • Basic overview of digital components • Flip flop operations • Setup and Hold Time Concepts • Design of Mealy and Moore circuits • State machine concepts • State reduction algorithm 	
		CMOS VLSI DESIGN CONCEPTS <ul style="list-style-type: none"> • Introduction to MOSFET and its Characteristics • Introduction to CMOS and characteristics • MOS structure and fabrication steps. • CMOS Logic design • Device sizing and analysis 	
PROJECT WORK			

SUBMISSION OF APPLICATION & ENTRANCE EXAMINATION

For submission of Application Form, visit website www.cdacnoida.in. Registration for the course would be done ONLINE. Candidate should also send the print out of the application form along with the self-attested photocopies of certificates/ mark sheets and DD (if mode of payment is DD) so as to reach the below mentioned address. The last date of form submission is on or before 9th July 2010. It is advised to read the General Instructions carefully before filling up the Application Form. Registration Fee is Rs. 300/-. Fee can be paid through DD or Credit Card only. DD should be in favor of CDAC, Noida payable at NOIDA. A candidate can apply for one or more than one course. Payment for multiple courses can be done through a single Demand Draft also. If payment is made through Credit Card then candidate shall be redirected to Payment Gateway of ICICI Bank by S/W wherein candidate can fill necessary details to complete the registration. There will be an Online Entrance Examination in 4 slots on 17th & 18th July 2010 at C-DAC, B-30, Institutional Area, Sector – 62, NOIDA. The test would be conducted in 2 hrs slots and would be of Adaptive Type consisting of Multiple Choice Questions based on the following: Introduction to Computers, C Language, Operating System, Digital Electronics, Circuit Theory, Linear IC Applications, Micro Processor & Micro Controller, Electronics Measurement & Instrumentation, Digital Communication, General English, Analytical reasoning, Quantitative Aptitude.

REGISTRATION FEES

Fee for the Course is Rs. 45,000/- payable in two installments (First installment Rs. 25,000/- and Second Rs. 20,000/-) by Demand Draft in favour of CDAC, NOIDA payable at Noida. First installment of fee is to be deposited by the selected candidates at the time of admission i.e. on or before 27th July 2010. The second installment is to be paid on the first working day of the programme i.e. 2nd August 2010. Course Fee is Non-transferable & Non-refundable. Fee may be refunded with certain conditions only, which will be declared along-with result of the programme. In case, any selected candidate does not pay first installment of fee by 27th July 2010, his/her seat will be treated as vacant. Such vacant seats will be allotted to candidates in waiting list. Wait listed candidates may contact CDAC, Noida at the venue given below on 29th July 2010 for allotment of seats on merit basis.