



# Employment Oriented Summer Course 2012

## Offered By NIST Technology Consulting Services NATIONAL INSTITUTE OF SCIENCE & TECHNOLOGY



Palur Hills, Berhampur - 761008, web : www.nist.edu

SUMMER COURSE CODE 2012/EDA

### Electronic Design Automation software Tools for VLSI/ASIC Design

#### Course Goals

To introduce the latest VLSI Design Technologies and software used in the Electronics/Semiconductor industry. The software and hardware packages which will be introduced in this course are :

- Xilinx ISE 9.1 for FPGA digital design, DSP design and implementation, Electrical and Instrumentation applications using Spartan/Virtex.
- Embedded system application using Xilinx EDK and Spartan/Virtex
- Active HDL for VHDL/Verilog digital design and simulation.
- Tanner tool for IC design.
- Introduction to Mentor Graphics, Synopsis, and Cadence tool for Mixed Signal design.
- Process Tool for silicon using Synopsis CAD.

#### Course Contents

- Overview of VLSI/ASIC design and methodology.
- Course on VHDL/Verilog, Spice.
- Architectural overview of FPGA and CPLDs.
- MOS and CMOS device physics.
- IC design and fabrication process (Full Custom and Semi Custom)
- Cell Library Design.
- Analog/Mixed signal design methodology.
- Testing/Mixed signal design methodology.
- Testing and Verification issues of VLSI Design.

#### Prerequisites

Students are expected to know the fundamentals of analog and digital circuits. Students should have completed at least 4th Semester of BPUT.

#### Course Fees :

For Students: Rs. 7,000/-  
For Industry sponsored candidates: Rs. 8,500/-

SUMMER COURSE CODE 2012/AIAT

### Advanced Industrial Automation Technology

#### Course Goals

The aim is to assimilate and implement state of the art technologies in the fields of hardware and software related to real time system implementation. The focus areas are as follows:

- Programmable Logic Controllers (PLCs)
- Microcontrollers
- Virtual Instrumentation
- SCADA
- Drives
- MMI (Man Machine Interface)

Each of the above fields is of importance either for their wide applications in industrial environment or for their applications in embedded systems.

#### Course Contents

- Programmable Logic Controllers (PLC) : General introduction to PLCs. Architecture of Messung PLC XMP8-11 and GEFanuc-MicroPLC, Detailed study of Ladder Programming, Interfacing devices with analog and digital I/O, Exposure to industrial level Applications.
- Microcontrollers : Architecture of the Intel 8051 Microcontroller, Syntax of 8051 Assembly Language, Interfacing devices through 8051 I/O ports, Interfacing devices through additional 8255 interfaces.
- Virtual Instrumentation : Designing interfaces for Instruments, Programming the VI, Designing sub VIs, Connecting the device with real time inputs through DAQ card.
- SCADA (Eclipse) : Basics of SCADA and its applications, designing interfaces for user applications and PLC based applications.
- Drives: Fundamentals of Drives with hands on practice to program a drive.
- Man Machine interfaces (MMI): Fundamentals of MMI, Programming PLCs through MMI.

#### Prerequisites

Some prior exposure to microprocessors and working knowledge of computers is desired.

#### Course Fees :

For Students: Rs. 7,000/-  
For Industry sponsored candidates: Rs. 8,500/-

SUMMER COURSE CODE 2012/ESEV

### Embedded System and Embedded VLSI

#### Course Goals

To introduce the latest VLSI and Embedded Technologies and software. Here the students will be introduced to ARM based application, real time operating system, VxWorks, Xilinx Based Embedded System etc.

#### Course Contents

- **Introduction To Embedded System:** Introduction, Features, Current trends and challenges, Real Time Systems, Hard & Soft.
- **Programming Concept:** Review of C Programming, Embedded C programming, Embedded Systems Design, Implementation and Testing.
- **ARM Based Application Development :** ARM Processor Basics , Programmer's Model, ARM Instruction Set, Thumb Instructions, Programming ARM with C
- **Concepts Real Time Operating System:** RTOS Programming, Components of RTOS, Task Management, Inter Task synchronization, Inter Task Communication, Interrupt Handling, Pitfalls for Real-Time Software Developers
- **Tornado and VxWorks:** Tornado, Cross Development, Tornado host IDE, CrossWind Debugger, Debugger Tool Bars, Starting and stopping a debugger, WindView Software Logic Analyzer, Tornado Target Server, VxWorks: A partner in the Real-time Development Cycle, VxWorks facilities, Multiple Tasks, Inter task Communication (semaphore, Message Queues, pipes), Network Intertask communication, POSIX Shared Memory
- **Xilinx Based Embedded System:** Introduction to Embedded FPGA and its architecture, Embedded Xilinx Software Flow, Synthesis and Implementation (Spartan 3E Board)

#### Prerequisites

6th Semester and above Students having basic knowledge of microprocessor and programming concepts

#### Course Fees :

For Students: Rs. 7,000/-  
For Industry sponsored candidates: Rs. 8,500/-

SUMMER COURSE CODE 2012/SAP

### Business Process Integration using SAP

#### Course Goals

SAP Training Program is design to help you learn the configuration and usage of different SAP modules. This will also guide you for the SAP Certification Program.

#### Course Contents

Introduction to SAP, Architecture of SAP: Organizational structure, Master data, Rules and Transactions.

#### SAP Financial Accounting (FI) Module:

- Financial Module basics
- Organizational Structures: Client Code, Company Code, Controlling Area, Chart of Accounts, Credit Control Area, Fiscal Year.
- Master Data: General Ledger, GL Account Master Records, Reconciliation Accounts, Vendor Master.
- Rules: Account Group, Field Status Variants, Tolerance Groups, Posting Keys.
- Financial Transactions: the way transactions would be carried out.

#### SAP Material Management (MM) Module:

- Corporate Structure: Plant, Storage location, Purchasing organization, Sales organization, Warehouse number, Storage type
- Master Data: Creation of Material and Vendor master.
- Rules: Defining the rules of Material management module.
- Transaction : Running transactions in the material management module for e.g. Quotations, scheduled agreements and other forms of purchase transactions.

#### SAP Sales & Distribution (SD) Module:

- Organizational Structure: Configuring Sales and distribution organizational structure
- Master Data: Creation of Material, customer master data, Material prices and conditions record.
- Rules: Configuring the rules of SD module and understanding the linkage between SD and FI module.
- Generating Documents: Generating an inquiry, quotation, sales order, delivery, billing, payment receipt and other sales related transactions.

#### Course Fees :

For Students: Rs. 10,000/-  
For Industry sponsored candidates: Rs. 12,000/-

SUMMER COURSE CODE 2012 /JRR

### J2EE and Rational Rose

#### Course Goals

- Industry Oriented Course
- For the first time being offered in eastern India
- Leads to appear for certification offered by IBM
- Heavy demand for such certification by IBM/ Accenture/Infosys/TCS/Satyam
- A result of Industry-Institute partnership.
- Experts from industry and IITs will participate in the course.
- Fully hands on using IBM Rational Rose software.

#### Course Contents

- The servlet technology model
- The structure and development of Web Application
- The Web container model
- Session Management
- Architecture Analysis
- Web application security
- The Java Server Pages (JSP) Technology model
- J2EE patterns
- E-JB-QL
- Message driven bean component contract
- Best practices of software engineering
- Concepts of object orientation
- Requirement overview
- Analysis and design overview
- Use-case Analysis
- Identify design elements
- Identity design mechanisms
- Describe the Run-time architecture
- Describe distribution, Use-case design, subsystem design, class and Database design.

#### Prerequisites

Knowledge of Core Java is must.

#### Course Fees :

For Students: Rs. 7,000/-  
For Industry sponsored candidates: Rs. 8,500/-

SUMMER COURSE CODE 2012/CCNA

### Certification Course Cisco Certified Network Associate(CCNA)

#### Course Goals

This Course is designed to prepare the students for the Cisco Certified Network Associate (CCNA 640-801 or CCNA INTRO 640-821 and Interconnecting Cisco Networking Devices Exam (ICND 640-811)) Examination. You can use either one-exam path (CCNA 640- 801) or two-exam path (CCNA 640 - 801 and ICND 640-811) to earn your CCNA certification.

#### Course Contents

- OSI Model and industry standard network topologies; IP addressing, including subnet masks, Network components , Basic network design.
- Beginning router configurations Routed and routing protocols.
- Advanced router configurations, LAN switching theory and VLANs. Advanced LAN and LAN switched design; Novell IPX, threaded case studies.
- WAN theory and design. WAN technology, PPP Frame Relay, ISDN. Network trouble shooting, Threaded case studies.

#### Prerequisites

Some prior working knowledge of computers is desired.

#### Course Fees :

For Students: Rs. 7,000/-  
For Industry sponsored candidates: Rs. 8,500/-

SUMMER COURSE CODE 2012/SEC

### Spoken English Language course

#### Course Goals

To prepare you to speak English fluently by training you to produce the sounds of the language in the right way. After the end of this course the students will master the basic elements of English pronunciation and improve their production of the spoken language. Practice material will be given and particular difficulties of the speakers will be noted and remedial exercises provided. The training will be provided through Hi-Class SW software.

#### Course Contents

- The Basic sounds and sound groups of English(vowels & consonants)
- Problems in pronunciation
- Stress & Rhythm units
- Intonation.
- Listening & Speaking Practice.
- Introduction to GRE and TOEFL.
- Introduction to British English Certificate(BEC).
- Vocabulary Practice.
- Group Discussions.

#### Prerequisites

For all BE, B.Tech., MCA , M.Tech. and MBA students

#### Course Fees :

For Students: Rs. 3,000/-  
For Industry sponsored candidates: Rs. 4,000/-

SUMMER COURSE CODE 2012/ORA

### Certification Course Introduction to ORACLE 9i : SQL [Exam # 1Z0-007]

#### Course Goals

To prepare you for the first paper [Exam # 1Z0-007] of OCA (Oracle Certified Associate) certification examination. As this course covers the complete set of SQL Queries, this will also help in designing back-ends for database related projects.

#### Course Contents

- Writing Basic SQL Select Statements
- Restricting and Sorting Data.
- Single Row Functions.
- Displaying Data from Multiple Tables with Joins.
- Aggregating Data Using Group Functions.
- Sub queries.
- Producing readable Output with iSQL\*Plus.
- Manipulating Data using INSERT, UPDATE, DELETE and MERGE statements.
- Creating and Managing Tables.
- Including Constraints
- Creating Views
- Creating Other Database Objects like Sequence, Index, and synonyms.
- Controlling User Access.

#### Prerequisites

Your must have knowledge of any one high level programming language like C , Pascal, or Fortran and have some exposure to database fundamentals.

#### Course Fees :

For Students: Rs. 7,000/-  
For Industry sponsored candidates: Rs. 8,500/-

SUMMER COURSE CODE 2012/SAPBI

### Data Warehousing, Data Mining & Business Intelligence on SAP Platform

#### Course Contents

- **Overview:** Data Warehousing, OLAP and Data Mining
- **Classification:** Decision Tree Learning, Instance-Based Learning, Support Vector Machines, Neural Networks, Automatic Information Extraction
- **Clustering:** Clustering Methods, Semi-Supervised and Active Learning,
- **Warehousing:** Schema Integration and Data Cleaning, Deduplication
- **Data Marts:** Multidimensional Databases (OLAP), Advanced Topics, Integrating OLAP and mining
- **Data Warehousing & Business Intelligence Reporting using SAP :**
  - SAP Netweaver Business Warehouse Architecture
  - SAP Netweaver Business Warehouse Modeling
  - SAP Netweaver Business Warehouse Reporting Including Data Mining
  - SAP Business Objects Crystal Reporting
  - SAP Business Objects Xcelsius

#### Course Fees :

For Students: Rs. 7,000/-  
For Industry sponsored candidates: Rs. 8,500/-

SUMMER COURSE CODE 2012/SDT

### Software Design & Testing

#### Course Goals

The course is designed primarily for Students and Professionals who will be learning the use of the automation tools for Software Design and Testing. The audience should have knowledge of Software Engineering.

#### Course Contents

- Concepts of Software Engineering
- SDLC Models (Water fall, Spiral, V-model)
- Software Design lifecycle using Rational Rose
- Fundamentals of Software Testing
- Different Types of Testing
- Test Plan and Test Cases Design
- Software Testing Life Cycle (STLC)
- Functional Testing with Functional Tester
- Record automated scripts
- Play back automated scripts
- Modify automated scripts
- View and analyze results with the HTML log
- Use test object maps
- Use pattern-based recognition
- Use of ScriptAssure technology
- Create data-driven tests and use Datapools

#### Course Fees :

For Students: Rs. 7,000/-  
For Industry sponsored candidates: Rs. 8,500/-

The above fees includes course material, course bag & kit, transport, breakfast, lunch, tea & snacks. The course fees can be paid in cash or through DD/ Cheque in favor of "NATIONAL INSTITUTE OF SCIENCE & TECHNOLOGY, Berhampur" at the center mentioned below.

#### Duration & Timings :

4 weeks x 6 days a week x 8 hours a day,

Course Code Start Date End Date  
All Courses 16-05-2012 12-06-2012

Dates may change with respect to completion of BPUT Semester Examination

VENUE: NIST, BERHAMPUR & OUR BHUBANESWAR CENTER

#### LAST DATE FOR REGISTRATION

1 week before the start date of respective batches  
Registration Fees : Rs. 500/- (This Regn. Fees will be deducted from the amount of the Course Fees)  
Limited Seats are available on a first-come-first served basis

#### Grading :

There will be regular examinations conducted every Saturday and the grade will be awarded based on the performance in the tests and the projects.

#### Facilities :

Well equipped laboratory facilities/experienced instructors, custom developed course notes will be provided. Hostel facility available for Rs. 1,500/- including boarding and dinner.

#### More details contact :

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