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Certificate

Embedded System and Embedded VLSI

This certificate is awarded to **Raj Shekhar Mishra** for successfully completing the training course entitled **Embedded System and Embedded VLSI** of 192 hours duration (96 Lecture hours, 96 Lab. hours) conducted from 19th May 2018 to 15th June 2018.

Certificate # : NIST/ESEV-2018/025

Grade : 'O'

Date of Issue : 15th June 2018

Course Coordinator

Placement Director

Director

This certificate can be verified by writing to the above address by mentioning the certificate number and date of issue. The course details are shown on the reverse side of this certificate.

NATIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY

Palur Hills, Berhampur, Ph.: 0680-2492421/422, ODISHA-761008, INDIA

Embedded System

Course Goals

To introduce latest embedded technology and design trends and tools. Here the students will learn : Design with 8 bit 8051 microcontroller, 32 bit ARM-RISC Processor. They will also learn how to program Raspberry Pi and Arduino for IoT Applications. The course also covers basic of mobile application development using Android to communicate with hardware.

Course Contents

- ☞ **Introduction To Embedded System:** Introduction, Features, Current trends and challenges, Hard & Soft Real Time Systems.
- ☞ **Programming Concept:** Review of C Programming, Embedded C programming, Embedded Systems Design, Implementation and Testing.
- ☞ **Working with Microcontrollers (Intel 8051) :** Architecture, Instruction Set, Usage of Assemblers, Programming kits with Assembly Language. Working with KEIL, Programming 8051 Kits with KEIL. Making of your own kit with 8051 and programming It. Understanding Timers and Interrupt and UART on 8051. Interfacing LEDs and LCD Modules.
- ☞ **Working with RISC Computers (ARM 7TDMI):** RISC Architecture, Difference between RISC and CISC machines, ARM Architecture and Instruction set, Programming ARM with Assembly language using KEIL. Programming ARM with Higher level language. Accessing GPIO on ARM, Interfacing UART, I2C and SPI, Working with ADC and DAC on ARM etc.
- ☞ **Designing IoT application using Raspberry PI and Arduino:** Basics of Arduino, Architecture, Programming Interface, GPIO, ADC and DAC, Accessing Internet.
Raspberry PI setup, Programming PI using Python, GPIO using PI, Using Internet through Ethernet and Wifi.
Interfacing sensors and actuators through ADC/DAC.
- ☞ **IoT applications Development:** Setting up web servers with Web API. Connecting Raspberry and Arduino t internet to push the data to internet.
- ☞ **Development of Android Application:** Android Programming: Android Platform, Architecture Basics, Interface Design, Resources, Database (sqlite). Location tracking, Google Map on Android. Facebook Access from Android. Accessing data from Raspberry PI through Android App.

Course Coordinator: Mr. Bhawani Shankar Pattnaik

About NIST:

The National Institute of Science and Technology established in 1996 is approved by the All India Council for Technical Education (AICTE under MHRD, Govt. of India) and is affiliated to the Biju Patnaik University of Technology (BPUT).

NIST is the only Institute in Eastern India to have implemented full e-governance (online ERP systems) in all aspects of teaching and administration using its internally developed programs by its NIST Technology Consulting Services (NTCS).

RECENT ACHIEVEMENTS

- NIST Ranked **69th** in All-India & **1st** among all Engineering Colleges of BPUT by NIRF 2016
- NAAC (UGC) accredited NIST with Grade '**A**' and highest rating of 3.22 among all engineering colleges of Odisha.
- NIST Ranked **66th** among all Engineering Colleges in INDIA by OUTLOOK 2016.
- NIST Ranked **2nd** in Eastern INDIA and **13th** among all Engineering Colleges in INDIA by DATAQUEST 2016
- BPUT Students have ranked NIST as **No. 1** private engineering college of Odisha.
- NIST awarded the Best Institute of Odisha, 2015.