AN ISO 9001:2008 CERTIFIED R&D COMPANY

SPIRO

SOUTH INDIA'S LEADING TRAINING COMPANY

FINAL YEAR PROJECT TRAINING

IEEE PROJECT TRAINING

CORPORATE TRAINING

R & D TRAINING

IT TRAINING

www.spiroprojects.com

A SPIRO GROUP OF COMPANIES

SPIRO
Solutions Pvt. Ltd
[A Unit of Spiro Group of Companies]

Welcome to Spiro Group of Companies,

In our brief journey since inception, Spiro Solutions Pvt. Ltd has progressed well and has achieved many milestones

SPIRO Solutions Pvt. Ltd. is unit of SPIRO Group of Companies . Over a decade, we are furnishing individuals in all technologies and domains by fulfilling their desires in Research & Development Training ,Project Training,IEEE Project Training and IT Training sector through efficient training methodologies.

All our efforts are focused on students to meet industry requirements. We are premier provider of Project Training,IT Training, Research and Development Training skills across india .We offer true competency-based programs, we guarantee quality, and we guarantee to lower your costs, all at the same time.

SPIRO offers on-site Project training at your college location as well as a regular schedule of open-enrollment Project Training at frequent intervals in more than 40 cities Across India.Our Training cover over 60 different areas, including Project Training,IEEE Project Training ,Domain Training and IT Training.

We believe that when it comes to training, the need is to develop true competence in new skills, not just receive an overview of syntax and techniques.

The best way to assure competence is through facilitated hands on practice. Our students spend at least 50% of their time in class performing structured hands on lab exercises that build competence, confidence, and clarity.

Founded in 2005 by experienced professionals, Spiro has served thousands of Institutes and Lakhs of individuals over the six years.

I hope you find this Broucher informative, and it provides you with a greater understanding of the full range of our products and services and our deep-rooted commitment to quality.

With Regards,

S.M.Udhaiya Kumar B.E
Email : uthay@spiro.co.in

Follow Me On : www.facebook.com/uthaay www.linkedin.com/profile/viewid=76105213

We are associated with :

CII BNI MADRAS MMA MANAGEMENT ASSOCIATION NHRD IEEE MADRAS Section

SPIRO
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Welcome to Spiro Group of Companies,

Deepak brings rich and diverse corporate experience having associated in the past with some of the renowned brands in the market handling leadership roles starting with IT, ITES, Infrastructure and the latest being manufacturing for a large MNC; to add Deepak holds a management post-graduation from Loyola specializing in Human Resource & Marketing.

At Spiro the management team focuses to meet the growing needs of the industry. Spiro Solutions a group of Spiro Group of companies boasts of being pioneers in this domain focusing on specialized training courses and on-site projects, IT related training and R&D projects etc. We uphold a hands-on-approach on all our training needs which ensures utmost benefits to the students as we believe that success comes from a relentless focus on training, innovation and execution. As sustainable training means doing things better and smarter, it means making the most of to do what they do best and using the power of diverse ideas to overcome challenges.

With Regards,

Deepak Gonsalves

Business Head Message

SPIRO
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Welcome to Spiro Group of Companies,

As a successful business leader of Spiro Group of companies managing complex business verticals having a strong consulting background, in the past having managed varied HR vertical; training remains a core area of expertise. Having spent large part of my career with students has certainly helped identify the need and importance of quality training with Spiro.

A graduate in Economics and a post graduate in Human Resources with an overall experience of more than 14 years in the field of Human resources. He has positively contributed to various organizations that he has worked for during his tenure which includes Randstad (Formerly Ma Foi) – Worlds 2nd largest staffing company and now Spiro.
Our speciality is that we equip students technically on domains and technologies by fulfilling their aspirations and desires in R&D sector through our efficient training methodologies. Our focus is to prepare students and make them market ready by matching the expectation of the industry.

We also emphasis the importance of Research and Development by exchanging information which is expected by the industry and thereby transform students to face the challenges of the market.

With Regards,

Ivan

SPIRO Solutions Pvt. Ltd

(AN ISO 9001:2008 CERTIFIED COMPANY)

SPIRO SOLUTION PVT LTD PROVIDES R&D PROJECTS AND IMPARTS QUALITY TRAINING BY ADOPTING THE SYSTEM OF QUALITY ASSURANCE ENABLING CONTINUED IMPROVEMENT IN THE TEACHING, LEARNING PROCESSES TO ENHANCE STUDENT'S SKILLS AND TALENTS FOR THEIR EXEMPLARY CONTRIBUTION TO THE SOCIETY, THE NATION AND THE WORLD ON THE WHOLE.

Spiro Solutions, south India's leading training providers on Research & Development , IT training and projects company over a decade. We furnish individuals in all technologies and domains by fulfilling their desires in Research & Development sector through efficent training methodologies. All our efforts are focused on students to meet industry requirements. The global presence and reach attained by Spiro is not only substantiated by its presence, but also by the environment provided for the students. Since our environment is encapsulated with doctorates, professionals and other experts. Accordingly, we create a setting which enables student to recover from the existing learning processes and enables them to be an intellect.

In our increasing globalization, Spiro moves forward to unite the desires of students and challenges of the future in R&D sector by improving the agility and enabling students to achieve sustainable growth in the market. For future enhancement, industry based knowledge is provided for students in various levels. To sum up, we are filling students necessities in all possible ways as to make career brighter in their desired field.

OUR MISSION

To increase student's interface with R&D through exchange and research for steering the students in their precise career path, encourage them to strive hard by devoting energy and time, there by tasting success.

OUR VISSION

Spiro is to be the Global Leader of Research and Development projects focused mainly to make awareness among the students towards R&D and equip themselves for the emerging technologies.

OBJECTIVES

- To create optimum awareness about Research & Development projects and its importance.
- To function as an efficent industrial skill provider for students.
- To increase the ability of students to enter varied industries.
- To reduce the knowledge deficiency in a student's career.
- To recognize the student's exact desire and make them grow in it.

OUR TEAM

Team consists of enthusiastic experts, drawn from a range of disciplines and experience, supported by infrastructure and facilities, which are world class and distinctively state-of-the-art. Our Experts have diverse industry experience with the right mix of patience, and aggressiveness to assist students hence they are working as clear interface to students by delivering an uninterrupted real time help.

The strength of the organization not only depends on identifying and articulating intellectual challenges across a number of discipline of knowledge but also in development of specific problem-based advanced technologies to the students. Each and very expert in our organization has their own roles in student development process. Since experts are involved in all the stages of industial training. Team is persistently preserved to manage advanced technologies to increase the student's abilities in various sectors.

WHY WE ARE HERE

In academics side, student do not accomplish their required industrial exposure. Nevertheless it is essential skill for the student to get into industry and it is not easily acquired by them. To weaken the crisis, we are in the process of being well equipped with all required infrastructure for providing industry based skills for students in various strategies. To give world wide access, we make students interact with people across the world and to share the resources to fulfill their thirst.

To make the environment recognizable, students are involved and they interact with experts in real time working environment which assists them to acquire vast knowledge about the industry culture.

To lessen the gap between institution and industry, we function as a bridge for students.

WHAT WE DO

- SPIRO SOLUTIONS
  - Final Year Project Training
  - IEEE Project Training
  - Corporate Training
  - R & D Training
  - IT Training

OUR KEY ASSETS

1000 + client institutes in India and aboard.

5 branches

50 + franchisees

Tie ups with 200 + corporates

Tie-ups with 3000 + colleges at PAN India level

OUR 12 PRECEPTS BASED TRAINING

MILE STONES

- So far we have provided R&D training for more than 3,00,000 engineering Students
- Had conducted seminars in the recent trends of technology at various colleges.
- Our research projects had been presented in various National and International Conferences.
- Most of our projects were identified by the industries as suitable for their needs.
- Our n-number of students got research scholarship to extend our assisted projects. .further development.

DOMAIN

- IEEE
- Cloud Computing
- Networking
- Data Mining
- Image Processing
- Network Security
- Mobile Computing
- Software Engineering
- Web Services
- Web Technology
- Grid Computing
- Robotics
- Communication
- Wireless
- Power Electronics & Systems
- Electrical
- Automation

TECHNOLOGY

- C, C++
- Advanced Java
- J2EE
- DOT NET
- Android
- PHP
- Embedded
- VLSI
- MATLAB
- NS3
- BIG DATA ANALYTICS

IMAGE PROCESSING — MATLAB

S.NO	CODE	PROJECT TITLE
1	ITIMP01	Remote Authentication via Biometrics: A Robust Video-Object Steganographic Mechanism Over Wireless Networks - 2015
2	ITIMP02	Compressed-Domain Ship Detection on Space-borne Optical Image Using Deep Neural Network and Extreme Learning Machine - 2015
3	ITIMP03	Elaboration of Novel Image Processing Algorithm for Arcing Discharges Recognition on HV Polluted Insulator Model - 2015
4	ITIMP04	Face Recognition Across Non-Uniform Motion Blur, Illumination, and Pose - 2015
5	ITIMP05	A Novel Active Learning Method in Relevance Feedback for Content-Based Remote Sensing Image Retrieval - 2015
6	ITIMP06	Deep Representations for Iris, Face, and Finger-print Spoofing Detection- 2015
7	ITIMP07	Fast and Adaptive Detection of Pulmonary Nodules in Thoracic CT Images Using a Hierar-chical Vector Quantization Scheme - 2015
8	ITIMP08	Automated Vessel Segmentation Using Infinite Perimeter Active Contour Model with Hybrid Region Information with Application to Retinal -2015
9	ITIMP09	Four-Class Classification of Skin Lesions With Task Decomposition Strategy - 2015
10	ITIMP10	Automatic Classification of Intracardiac Tumor and Thrombi in Echocardiography Based on Sparse Representation - 2015
11	ITIMP11	Adaptive Co-Segmentation of Pheochromo cytomas in CECT Images Using Localized Level Set Models -2015
12	ITIMP12	Segmentation-Based Image Copy Move Forgery Detection Scheme - 2015
13	ITIMP13	High Capacity Reversible Data Hiding in Encrypted Images by Patch-Level Sparse Representation - 2015
14	ITIMP14	Unsupervised Detection of Earthquake-Triggered Roof-Holes From UAV Images Using Joint Color and Shape Features - 2015
15	ITIMP15	Traffic Sign Detection via Graph-Based Ranking and Segmentation Algorithms - 2015
16	ITIMP16	Localization of license plate number using Dynamic image processing techniques and Genetic algorithms - 2014
17	ITIMP17	A Novel Joint Data-Hiding and Compression Scheme Based on SMVQ and Image Inpainting - 2014
18	ITIMP18	Tampering Detection in Compressed Digital Video Using Watermarking - 2014
19	ITIMP19	Image Quality Assessment for Fake Biometric Detection: Application to Iris, Fingerprint and Face Recognition - 2014
20	ITIMP20	Multimodal Medical Volumetric Data Fusion Using 3-D Discrete Shearlet Transform and Global-to-Local Rule - 2014
21	ITIMP21	Lung Nodule Classification With Multilevel Patch-Based Context Analysis - 2014
22	ITIMP22	An Automatic Graph-Based Approach for Artery/Vein Classification in Retinal Images - 2014
23	ITIMP23	On Scanning Linear Barcodes From Out-of-Focus Blurred Images: A Spatial Domain Dynamic Template Matching Approach - 2014
24	ITIMP24	Remote Sensing Image Segmentation by Combin-ing Spectral and Texture Features - 2014
25	ITIMP25	Object-Oriented Shadow Detection and Removal From Urban High-Resolution Remote Sensing Images - 2014
26	ITIMP26	Fuzzy Clustering With a Modified MRF Energy Function for Change Detection in Synthetic Aperture Radar Images - 2014
27	ITIMP27	Measures of Effective Video Tracking - 2014

COMMUNICATION — MATLAB

S.NO	CODE	PROJECT TITLE
1	ITCM01	On The Sum-Rate Of The Gaussian Mimo Z Channel And The Gaussian Mimo X Channel
2	ITCM02	Privacy-Preserving Public Auditing forRegener-ating-Code-Based Cloud Storage - 2015
3	ITCM03	Relay-Selection Improves The Security-Reliability Trade-Off In Cognitive Radio Systems - 2015
4	ITCM04	Effect Of Mutual Coupling On The Channel Capacity Of Mimo Systems - 2015
5	ITCM05	Performance Of Reconfigurable Antennas In A Below-Decks Environment - 2015
6	ITCM06	Generalization Of Orthogonal Frequency Division Multiplexing With Index Modulation - 2015
7	ITCM07	Spectral Efficiency Of Otdm Systems With Random Residual Cto - 2015
8	ITCM08	Sum Rate Maximization Of An Mimo Two-Way Relay System Using Mse Duality - 2015
9	ITCM09	Papr Analysis Of Class-Iii Sim Scheme Based On Variance Of Correlation Of Alternative Ofdm Signal Sequences - 2015
10	ITCM10	Outage Probability Of Energy Harvesting Relay-Aided Cooperative Networks Over Rayleigh Fading Channel - 2015
11	ITCM11	Space Shift Keying For Los Communication At Mmwave Frequencies - 2015
12	ITCM12	Linear Precoding For Mimo With Ldpc Coding And Reduced Complexity - 2015
13	ITCM13	Performance Evaluation Of Mimo Ofdm Systems In On-Ship Below-Deck Environments - 2015
14	ITCM14	To Cooperate Or Not To Cooperate: An Outage Analysis Of Interference-Limited Wireless Networks - 2014
15	ITCM15	Power Control And Asymptotic Throughput Analysis For The Distributed Cognitive Uplink - 2014
16	ITCM16	Channel Model For Satellite Communication Links Above 10ghz Based On Weibull Distribution - 2014
17	ITCM17	On The Outage Performance Of Selection Amplify-And-Forward Relaying Scheme - 2014
18	ITCM18	Dynamic Subcarrier Coordinate Interleaving For Eavesdropping Prevenbon In Ofdm Systems - 2014
19	ITCM19	Analysis Of The Power Amplifier Nonlinearity On The Power Allocation In Cognitive Radio Networks - 2014
20	ITCM20	On Signal Detection In The Presence Of Weakly Correlated Noise Over Fading Channels -2014

DIGITAL SIGNAL PROCESSING — MATLAB

S.NO	CODE	PROJECT TITLE
16	ITDSP01	Fairness For Non-Orthogonal Multiple Access In 5g Systems - 2015
17	ITDSP02	Sum-Rate Optimal Network Beamforming And Subcarrier Power Allocation For Multi-Carrier Synchronous Two-Way Relay Networks - 2015
18	ITDSP03	Mimo-Oth Radar: Signal Model For Arbitrary Placement And Signals With Non-Point Targets -2015
19	ITDSP04	Low Cost Pre-Coder Design For Mimo Af Two-Way Relay Channel - 2015
20	ITDSP05	Transceiver Design For Hybrid One-Way And Two-Way Relay Networks - 2014
21	ITDSP06	Mimo Systems With Quantized Covariance Feedback - 2014
22	ITDSP07	Interference Alignment With Partial Csi Feedback In Mimo Cellular Networks -2014
23	ITDSP08	Rank-Two Beamformed Secure Multicasting For Wireless Information And Power Transfer - 2014

POWER ELECTRONICS
DOMAIN: AC TO DC CONVERTERS (RECTIFIERS

S.NO	CODE	PROJECT TITLE
1	ITPW01	An Integrated High-Power-Factor Converter With Zvs Transition -2015
2	ITPW02	High-Frequency-Fed Unity Power-Factor Ac–Dc Power Converter With One Switching Per Cycle - 2015
3	ITPW03	High-Power-Factor Rectifier Using The Modified Sepic Converter Operating In Discontinuous Conduction Mode - 2015
4	ITPW04	Improved-Power-Quality Bridgeless-Converter-Based Multiple-Output Smps -2015
5	ITPW05	Power Factor Corrected Zeta Converter Based Improved Power Quality Switched Mode Power Supply -2015
6	ITPW06	Single-Inductor Dual-Output Buck–Boost Power Factor Correction Converter -2015
7	ITPW07	A Novel Three-Phase Buck–Boost Ac–Dc Converter - 2014

POWER ELECTRONICS
DOMAIN: DC TO DC CONVERTERS (CHOPPERS)

S.NO	CODE	PROJECT TITLE
8	ITPW08	A Fast-Converging MPPT Technique For Photovoltaic System Under Fast-Varying Solar Irradiation And Load Resistance -2015
9	ITPW09	Inductors A High Gain Input-Parallel Output-Series Dc/Dc Converter With Dual Coupled -2015
10	ITPW10	High Gain Zero Voltage Switching Bidirectional Converter With Reduced Number Of Switches - 2015
11	ITPW11	Hybrid Transformer Zvs/Zcs Dc–Dc Converter With Optimized Magnetics And Improved Power Devices Utilization For Photovoltaic Module Applications - 2015
12	ITPW12	Isolated Ac/Dc Offline High Power Factor Single-Switch Led Drivers Without Electrolytic Capacitors - 2015
13	ITPW13	Non-Isolated High Step-Up Dc–Dc Converters Adopting Switched-Capacitor Cell - 2015
14	ITPW14	Performance Of Medium-Voltage Dc-Bus Pv System Architecture Utilizing High-Gain Dc–Dc Converter - 2015
15	ITPW15	Soft Switching Dc-Dc Converter For Distributed Energy Sources With High Step Up Voltage Capability - 2015
16	ITPW16	A High Voltage Gain Dc–Dc Converter Integrating Coupled-Inductor And Diode–Capacitor Techniques - 2014
17	ITPW17	Soft-Switching Current-Fed Push–Pull Converter For 250-W Ac Module Applications - 2014

POWER ELECTRONICS
DOMAIN: DC TO AC CONVERTERS (INVERTERS)

S.NO	CODE	PROJECT TITLE
18	ITPW18	A New Common-Mode Transformer Less Photovoltaic Inverter -2015
19	ITPW19	A Quasi-Unipolar Spwm Full-Bridge Transformerless Pv Grid-Connected Inverter With Constant Common-Mode Voltage. - 2015
20	ITPW20	A Single-Phase Cascaded Multilevel Inverter Based On A New Basic Unit With Reduced Number Of Power Switches - 2015
21	ITPW21	An Interleaved High-Power Flyback Inverter For Photovoltaic Applications - 2015
22	ITPW22	Hybrid Multicarrier Modulation To Reduce Leakage Current In A Transformerless Cascaded Multilevel Inverter For Photovoltaic Systems - 2015
23	ITPW23	Hybrid Switched-Inductor Converters For High Step-Up Conversion- 2015
24	ITPW24	Optimum Structures Of Proposed New Cascaded Multilevel Inverter With Reduced Number Of Components - 2015
25	ITPW25	Zero-Crossing Disturbance Elimination And Spectrum Analysis Of Single-Carrier Seven-Level Spwm - 2015
26	ITPW26	A Step-Up Switched-Capacitormultilevel Inverter With Self Voltage Balancing - 2014

POWER ELECTRONICS
DOMAIN: AC TO AC (CYCLOCONVERTER)

S.NO	CODE	PROJECT TITLE
27	ITPW27	A Bridgeless Bhb Zvs-Pwm Ac-Ac Converter For High-Frequency Induction Heating Applications - 2015
28	ITPW28	A Dimming Method For Hot Cathode Fluorescent Lamp Using A Resonant Inverter Operating At Fixed Switching Frequency - 2015

POWER ELECTRONICS
MOTOR APPLICATIONS

S.NO	CODE	PROJECT TITLE
29	ITPW29	Pfc Cuk Converter-Fed Bldc Motor Drive - 2015
30	ITPW30	A Bl-Cac Converter-Fed Bldc Motor Drive With Power Factor Correction - 2015
31	ITPW31	Power Factor Correction In Bridgeless-Luo Converter-Fed Bldc Motor Drive - 2015
32	ITPW32	Deployment Of An Adaptable Sensorless Commutation Technique On Bldc Motor Drives Exploiting Zero Sequence Voltage - 2015

33	ITPW33	A Unity Power Factor Bridgeless Isolated Cuk Converter-Fed Brushless Dc Motor Drive - 2015

POWER ELECTRONICS
DOMAIN: ELECTRICAL VEHICLE APPLICATIONS

S.NO	CODE	PROJECT TITLE
34	ITPW34	Performance Analysis Of Bi-Directional Dc-Dc Converters For Electric Vehicles -2015
35	ITPW35	A Nonisolated Multiinput Multioutput Dc–Dc Boost Converter For Electric Vehicle Applications - 2015

POWER SYSTEMS

S.NO	CODE	PROJECT TITLE
36	ITPS01	MPPT With Single Dc-Dc Converter And Inverter For Grid Connected Hybrid Wind-Driven Pmsg-Pv System - 2015
37	ITPS02	A High Step-Up Dc To Dc Converter Under Alternating Phase Shift Control For Fuel Cell Power System - 2015
38	ITPS03	Doubly Fed Induction Generator For Wind Energy Conversion Systems With Integrated Active Filter Capabilities - 2015
39	ITPS04	A Maximum Power Tracking Technique For Grid-Connected Dfig-Based Wind Turbinese - 2015
40	ITPS05	Power Balance Of Cascaded H-Bridge Multilevel Converters For Large-Scale Photovoltaic Integration - 2015
41	ITPS06	Current-Fed Soft-Switching Push-Pull Front-End Converter Based Bidirectional Inverter For Residential Photovoltaic Power System - 2015

POWER SYSTEMS
DOMAIN: POWER QUALITY IMPROVEMENT

S.NO	CODE	PROJECT TITLE
42	ITPS07	High-Gain Resonant Switched-Capacitor Cell-Based Dc/Dc Converter For Offshore Wind Energy Systems
43	ITPS08	An Improved Iupqc Controller To Provide Additional Grid-Voltage Regulation As A Statcom - 2015
44	ITPS09	Front-End Converter With Integrated Pfc And Dc–Dc Functions For A Fuel Cell Ups With Dsp-Based Control - 2015
45	ITPS10	An Enhanced Voltage Sag Compensation Scheme For DVR - 2015
46	ITPS11	Predictive Voltage Control Of Transformerless Dvr - 2015
47	ITPS12	Integrated Photovoltaic And Dynamic Voltage Restorer System Configuration - 2015
48	ITPS13	An Integrated Dynamic Voltage Restorer-Ultra capacitor Design For Improving Power Quality Of The Distribution Grid - 2015
49	ITPS14	Operation And Control Of An Improved Photovoltaic–Battery Interactive Dstatcom - 2014
50	ITPS15	LCL Filter Design And Performance Analysis For Grid Interconnected Systems - 2014

VLSI

S.NO	CODE	PROJECT TITLE
1	ITVL01	High-Speed and Energy-Efficient Carry Skip Adder Operating Under a Wide Range of Supply Voltage Levels - 2015
2	ITVL02	An Efficient Constant Multiplier Architecture Based on Vertical-Horizontal Binary Common Sub-expression Elimination Algorithm for Reconfigurable FIR Filter Synthesis - 2015
3	ITVL04	Trade-offs for Threshold Implementations Illustrated on AES - 2015
4	ITVL04	A Modified Partial Product Generator for Redundant Binary Multipliers - 2015
5	ITVL05	Reviewing High-Radix Signed-Digit Adders - 2015
6	ITVL06	Critical-Path Analysis and Low-Complexity Implementation of the LMS Adaptive Algorithm - 2014

VLSI : LOW POWER

S.NO	CODE	PROJECT TITLE
7	ITVL07	Implementation of Sub threshold Adiabatic Logic for Ultralow-Power Application - 2015
8	ITVL08	Aging-Aware Reliable Multiplier Design With Adaptive Hold Logic - 2015
9	ITVL09	Exact and Approximate Algorithms for the Filter Design Optimization Problem - 2015
10	ITVL10	Ultralow-Energy Variation-Aware Design: Adder Architecture Study - 2015
11	ITVL11	Fault Tolerant Parallel Filters Based on Error Correction Codes - 2015
12	ITVL12	Area-Delay-Power Efficient Carry-Select Adder - 2014

VLSI : HIGH SPEED

S.NO	CODE	PROJECT TITLE
13	ITVL13	Variable Latency Speculative Han-Carlson Adder - 2015
14	ITVL14	A High-Performance FIR Filter Architecture for Fixed and Reconfigurable Applications - 2015
15	ITVL15	Fast Sign Detection Algorithm for the RNS Moduli Set {2n+1 − 1, 2n − 1, 2n} - 2015
16	ITVL16	Energy-Efficient Approximate Multiplication for Digital Signal Processing and Classification Applications - 2015
17	ITVL17	An Optimized Modified Booth Recoder for Efficient Design of the Add- Multiply Operator. - 2014
18	ITVL18	Low-Latency Successive-Cancellation Polar Decoder Architectures Using 2-Bit Decoding. - 2014

VLSI : QCA TECHNOLOGY

S.NO	CODE	PROJECT TITLE
19	ITVL19	Coplanar Full Adder in Quantum-Dot Cellular Automata via Clock-Zone-Based Crossover - 2015
20	ITVL20	Synthesis of Majority/Minority Logic Networks - 2015
21	ITVL21	Design and simulation of Turbo encoder in quantum-dot cellular automata - 2015
22	ITVL22	Design of Efficient Binary Comparators in Quantum-Dot Cellular Automata - 2014
23	ITVL23	Area-Delay Efficient Binary Adders in QCA. - 2014

VLSI
DOMAIN: DESIGN WITH TEST BENCH

S.NO	CODE	PROJECT TITLE
24	ITVL24	Reverse Converter Design via Parallel-Prefix Adders: Novel Components, Methodology, and Implementations - 2015
25	ITVL25	ERSFQ 8-Bit Parallel Adders as a Process Benchmark
26	ITVL26	(4 + 2log n)ΔG Parallel Prefix Modulo-(2n − 3) Adder via Double Representation of Residues in [0, 2]

VLSI
DOMAIN: EDA TOOL (TANNER TOOL)

S.NO	CODE	PROJECT TITLE
27	ITVL27	Energy and Area Efficient Three-Input XOR/XNORs With Systematic Cell Design Methodology
28	ITVL28	Single-Supply 3T Gain-Cell for Low-Voltage Low-Power Applications
29	ITVL29	Recursive Approach to the Design of a Parallel Self-Timed Adder
30	ITVL30	Low-Power Variation-Tolerant Nonvolatile Lookup Table Design
31	ITVL31	Finite State Machines With Input Multiplexing: A Performance Study
32	ITVL32	Analysis and Design of a Low-Voltage Low-Power Double-Tail Comparator
33	ITVL33	Universal Set of CMOS Gates for the Synthesis of Multiple Valued Logic Digital Circuits

VLSI
DOMAIN:VLSI WITH MATLAB

S.NO	CODE	PROJECT TITLE
34	ITVL34	A Generalized Algorithm and Reconfigurable Architecture for Efficient and Scalable Orthogonal Approximation of DCT
35	ITVL35	Design and Analysis of Approximate Compressors for Multiplication
36	ITVL36	An Analytical Framework for Evaluating the Error Characteristics of Approximate Adders
37	ITVL37	Efficient coding scheme for fault Tolerant parallel filter
38	ITVL38	Input-Based Dynamic Reconfiguration of Approximate Arithmetic Units
39	ITVL39	Improved 8-Point Approximate DCT for Image and Video Compression Requiring Only 14 Additions
40	ITVL40	High-Throughput Multi standard Transform Core Supporting MPEG-H.264/VC-1 Using CSDA

EMBEDDED : ROBOTICS

S.NO	CODE	PROJECT TITLE
1	ITROB01	Online High-Precision Probabilistic Localization of Robotic Fish Using Visual and Inertial Cues - 2015
2	ITROB02	A Sensor-Based Dual-Arm Tele-Robotic System -2015
3	ITROB03	High-Speed Automated Manipulation of Micro objects Using a Two-Fingered Micro hand - 2015
4	ITROB04	Control of a Snake Robot for Ascending and Descending Steps - 2015
5	ITROB05	Occlusion-Based Cooperative Transport with a Swarm of Miniature Mobile Robots - 2015
6	ITROB06	Critical-Path Analysis and Low-Complexity Implementation of the LMS Adaptive Algorithm - 2015
7	ITROB07	Human-Like Motion Generation and Control for Humanoid's Dual Arm Object Manipulation - 2015
8	ITROB08	Robot Guided Crowd Evacuation - 2015
9	ITROB09	Bio-inspired Group Modeling and Analysis for Intruder Detection in Mobile Sensor/Robotic Networks - 2015
10	ITROB10	Efficient Road Detection and Tracking for Unmanned Aerial Vehicle -2015
11	ITROB11	A Robust Real-Time Vision System for Autonomous Cargo Transfer by an Unmanned Helicopter -2015
12	ITROB12	An Ultrasonic and Vision-Based Relative Positioning Sensor for Multi robot Localization - 2015
13	ITROB13	Artificial Co-Drivers as a Universal Enabling Technology for Future Intelligent Vehicles and Transportation Systems - 2015
14	ITROB14	Robust Control of a Miniature Ducted-Fan Aerial Robot for Blind Navigation in Unknown Populated Environments - 2015
15	ITROB15	Effects ofVibrotactile Feedback on Human Learning of Arm Motions - 2015
16	ITROB16	Wireless Underwater Mobile Robot System Based on Zigbee - 2015
17	ITROB17	A Compact and Compliant External Pipe-Crawling Robot 2014
18	ITROB18	An Online Stair-Climbing Control Method for a Transformable Tracked Robot -2014
19	ITROB19	Probability-Based Location Aware Design and On-Demand Robotic Intrusion Detection System - 2014
20	ITROB20	Towards a New Modality-Independent Interface For a Robotic Wheelchair - 2014
21	ITROB21	A Study on Sinus-Lifting Motion of a Snake Robot With Sequential Optimization of a Hybrid System - 2014
22	ITROB22	Mobile Robot Localization Using the Phase Of Passive UHF RFID Signals - 2014
23	ITROB23	Vision-Based Robust Path Reconstruction For Robot Control - 2014
24	ITROB24	Automatic lighting system using multiple Robotic lamps - 2014

EMBEDDED : ANDROID

S.NO	CODE	PROJECT TITLE
25	ITANR01	Smart Diary: A Smartphone-Based Framework forSensing, Inferring, and Logging Users' Daily Life - 2015
26	ITANR02	Smart PDR: Smartphone-Based Pedestrian DeadReckoning for Indoor Localization - 2015
27	ITANR03	Android Security: A Survey of Issues,Malware Penetration and Defenses - 2015
28	ITANR04	A Software Based Sonar Ranging Sensor for Smart Phones - 2015
29	ITANR05	Wearable system for monitoring of oxygen Concentration in breath basedOn optical sensor - 2015
30	ITANR06	Automated Health Alerts Using In-Home Sensor Data for Embedded Health Assessment - 2015
31	ITANR07	Novel Sampling Algorithm for Human Mobility-Based Mobile Phone Sensing - 2015
32	ITANR08	Estimating Users' Home and Work Locations Leveraging Large-Scale Crowd-Sourced Smartphone Data - 2015
33	ITANR09	Estimation of Respiratory Rate from Photoplethysmographic Imaging Videos Compared to Pulse Oximetry - 2015
34	ITANR10	Acquisition and Elaboration of Cardiac Signal in Android Smartphone Devices - 2014
35	ITANR11	A Novel Electric Vehicle for Smart Indoor Mobility - 2014
36	ITANR12	Unobtrusive Sensing and Wearable Devices For Health Informatics - 2014

EMBEDDED : AUTOMATION

S.NO	CODE	PROJECT TITLE
37	ITAM01	Primary-Side Power Flow Control of Wireless Power Transfer for Electric Vehicle Charging - 2015
38	ITAM02	On Curve Negotiation: From Driver Support to Automation - 2015
39	ITAM03	Energy Exchange Between Electric Vehicle Load andWind Generating Utilities - 2015
40	ITAM04	Multi objective Vehicle Routing Problems With Simultaneous Delivery and Pickup- 2015
41	ITAM05	Diffraction-Compensating Coded Aperture for Inspection in Manufacturing (PIPE CRAWLING) - 2015
42	ITAM06	Energy-Efficient Control Strategies for Machine-Tools With Stochastic Arrivals - 2015
43	ITAM07	An Automated Test Generation Techniquefor Software Quality Assurance - 2015
44	ITAM08	Path-Constrained Motion Analysis: An Algorithm toUnderstand Human Performance on Hydraulic Manipulators - 2015
45	ITAM09	A Practical Wireless Attack on the Connected Car and Security Protocol for In-Vehicle CAN - 2015
46	ITAM10	Central Electric-Motoring-Assisted Handling Control System for Electrified Vehicles - 2015
47	ITAM11	Detection of U.S. Traffic Signs - 2015
48	ITAM12	Designing Steering Feel for Steer-by-Wire Vehicles Using Objective Measures - 2015
49	ITAM13	Wireless Sensor Networks for Condition Monitoringin the Railway Industry: A Survey - 2015
50	ITAM14	Integrated Indoor Navigation System for Ground-Vehicles With Automatic 3-D Alignment and Position Initialization - 2015
51	ITAM15	Constrained Global Path Optimization forArticulated Steering Vehicles - 2015
52	ITAM16	Automatic Detection of Squats in Railway Infrastructure - 2014
53	ITAM17	Receiver Autonomous Integrity Monitoring of GNSS Signals for Electronic Toll Collection - 2014
54	ITAM18	Guest Editorial Special Section on Building Automation, Smart Industry Robot - 2014
55	ITAM19	Text Detection and Recognition on Traffic Panels From Street-Level Imagery Using Visual Appearance - 2014
56	ITAM20	An Industrial Perspective on Wireless Sensor Networks - A Survey of Requirements, Protocols, and Challenges - 2014
57	ITAM21	Implementation of CAN bus in an autonomous All-Terrain Vehicle - 2014
58	ITAM22	Hand-Motion Crane Control Using Radio Frequency real-Time Location Systems - 2014
59	ITAM23	An Iranian License Plate Recognition System Based on Color Features - 2014
60	ITAM24	Portable Roadside Sensors for Vehicle Counting, Classification, and Speed Measurement - 2014

EMBEDDED : WIRELESS

S.NO	CODE	PROJECT TITLE
61	ITWI01	Implementation of a Wireless ECG Acquisition So C for IEEE 802.15.4 (ZigBee) Applications - 2015
62	ITWI02	A Zigbee-Based Animal Health Monitoring System - 2015
63	ITWI03	Design and Application of a VOC-Monitoring System Based on a ZigBee Wireless Sensor Network - 2015
64	ITWI04	Charging Time Characterization for Wireless RF Energy Transfer - 2015
65	ITWI05	Real-time Fire Detection for Video Surveillance Applications using a Combination of Experts based on Color, Shape and Motion- 2015
66	ITWI06	C-Band SAR Backscatter Evaluation of 2008 Gallipoli Forest Fire - 2015
67	ITWI07	ZigBee-Based Communication System for Data Transfer Within Future Microgrids - 2015
68	ITWI08	A Blind Zone Alert System Based on Intra-Vehicular Wireless Sensor Networks - 2015
69	ITWI09	Wireless Power Transfer for Electric Vehicle Applications - 2015
70	ITWI10	Investigating Wireless Charging and Mobility of Electric Vehicles on Electricity Market - 2015
71	ITWI11	A Low Cost, Highly Scalable Wireless Sensor Network Solution to Achieve Smart LED Light Control for Green Buildings - 2015

72	ITWI12	A Low-Power Wireless Sensor for Online Ambient Monitoring - 2015
73	ITWI13	Passive and Semi-Passive Wireless Temperature and Humidity Sensors Based on EPC Generation-2 UHF Protocol - 2015
74	ITWI14	An Approach of Reliable Data Transmission With Random Redundancy for Wireless Sensors in Structural Health Monitoring. - 2015
75	ITWI15	Wireless Resource Allocation in Next Generation Healthcare Facilities - 2015
76	ITWI16	Channel and Energy Modeling for Self-Contained Wireless Sensor Networks in Oil Reservoirs - 2014
77	ITWI17	WSN-Based Smart Sensors and Actuator for Power Management in Intelligent Buildings - 2014
78	ITWI18	Data Reduction and Energy Sustenance In Multi sensor Networks for Landslide Monitoring - 2014
79	ITWI19	A Reconfigurable Smart Sensor Interface for Industrial WSN in IoT Environment. - 2014
80	ITWI20	A System for Automatic Notification and Severity Estimation of Automotive Accidents - 2014
81	ITWI21	Wireless Sensor Network Based Smart Home: Sensor Selection, Deployment and Monitoring - 2015

EMBEDDED : GSM & GPS

S.NO	CODE	PROJECT TITLE
82	ITGP01	Understanding Taxi Service Strategies From Taxi GPS Traces - 2015
83	ITGP02	Real-Time GPS Precise Point Positioning-Based Precipitible Water Vapor Estimation for Rainfall Monitoring and Forecasting - 2015
84	ITGP03	Traffic Sensing Through MATLAB - 2015
85	ITGP04	Implementing Intelligent Traffic Control System for Congestion Control, Ambulance Clearance And Stolen Vehicle Detection - 2015
86	ITGP05	Energy-Efficient Models of Sustainable Location for vehicle Inspection Station with Emission Constraints
87	ITGP06	Energy-Efficient Real-Time Human Mobility State Classification Using Smart phones - 2015
88	ITGP07	Sensed: Sensing Driving Conditions to Estimate Vehicle Speed in Urban Environments - 2015
89	ITGP08	Automatic detection and notification of potholes and humps on roads to aid drivers - 2015
90	ITGP09	A Smart Phone-Based Pocket Fall Accident Detection, Positioning, and Rescue System - 2015
91	ITGP10	A Methodology for Denoising and Generating Bus Infrastructure Data - 2015
92	ITGP11	Miniature Folded Patch GPS Antenna for Vehicle-Communication Devices - 2015
93	ITGP12	Road-Network Aware Trajectory Clustering: Integrating Locality, Flow, and Density - 2015
94	ITGP13	A Compressive Sensing Approach to Describe Indoor Scenes for Blind People - 2015
95	ITGP14	Indoor Tracking: Theory, Methods, and Technologies - 2015
96	ITGP15	96 ITGP15 Fall Detection Based on Body Part Tracking 2015
97	ITGP16	A New Payment System for Enhancing Location Privacy of Electric Vehicles - 2014
98	ITGP17	A System for Automatic Notification and Severity Estimation of Automotive Accidents - 2014.
99	ITGP18	Automated Irrigation System Using a Wireless Sensor Network and GPRS Module - 2014
100	ITGP19	Rail Component Detection, Optimization, and Assessment for Automatic Rail Track Inspection
101	ITGP20	Automatic ambulance rescue system - 2014

EMBEDDED : CONSUMER ELECTRONIC

S.NO	CODE	PROJECT TITLE
102	ITCE01	Synergistic Change Detection and Tracking - 2015
103	ITCE02	Unknown Tag Identification in Large RFID Systems: An Efficient and Complete Solution - 2015
104	ITCE03	Global Sensor Deployment and LocalCoverage-Aware Recovery Schemes for Smart Environments - 2015
105	ITCE04	Use of an Inertial/Magnetic Sensor Module for Pedestrian Tracking During Normal Walking - 2015
106	ITCE05	Integration of MEMS Inertial and Pressure Sensors for Vertical Trajectory Determination - 2015
107	ITCE06	PRLS-INVES: A General Experimental Investigation Strategy for High Accuracy and Precision inPassive RFID Location Systems - 2015
108	ITCE07	Accurate and Efficient Object Tracking based on Passive RFID - 2015
109	ITCE08	Proximity Sensing Based on a Dynamic Vision Sensor for Mobile Devices - 2015
110	ITCE09	A Rule-based Service Customization Strategy for Smart Home Context-aware Automation - 2015
111	ITCE10	Exploiting Passive RFID Technology for Activity Recognition in Smart Homes - 2015
112	ITCE11	A Health-IOT Platform based on the Integration of Intelligent Packaging, Bio-Sensor and Intelligent Medicine Box - 2014
113	ITCE12	Assistive clothing pattern recognition For visually impaired people - 2014
114	ITCE13	Modeling and Detecting Aggressiveness From Driving Signals - 2014
115	ITCE14	Prototype of a fingerprint based licensing system for driving - 2014

EMBEDDED : ELECTRICAL

S.NO	CODE	PROJECT TITLE
116	ITEEE01	Real-Time Energy Storage Management for Renewable Integration in Microgrid: An Off-Line Optimization - 2015
117	ITEEE02	Data-Stream-Based Intrusion Detection System for Advanced Metering Infrastructure in Smart Grid: A Feasibility Study - 2015
118	ITEEE03	WSN-Based Smart Sensors and Actuator for Power Management in Intelligent Buildings - 2015
119	ITEEE04	Distributed Smart-Home Decision-Making in a Hierarchical Interactive Smart Grid Architecture

120	ITEEE05	Condition Monitoring of an Induction Motor Stator Windings Via Global Optimization Based on the Hyperbolic Cross Points - 2015
121	ITEEE06	Last-Meter Smart Grid Embedded in an Internet-of-Things Platform - 2015
122	ITEEE07	Energy Management in the Decentralized Generation Systems Based on Renewable Energy—Ultra capacitors and Battery to Compensate the Wind/Load Power Fluctuations - 2015
123	ITEEE08	Real-Time Price Based Home Energy Management Scheduler - 2015
124	ITEEE09	An Anonymous Authentication Scheme for Plugin Electric Vehicles Joining to Charging/Discharging Station in Vehicle-to-Grid (V2G) Networks - 2015
125	ITEEE10	Extraction of Energy Information From Analog Meters Using Image Processing - 2015
126	ITEEE11	A Control Architecture to Coordinate Renewable Energy Sources and Energy Storage Systems in Islanded Microgrids - 2015
127	ITEEE12	A Nonintrusive Power Supply Design for Self-Powered Sensor Networks in the Smart Grid by Scavenging Energy From ACPower Line - 2015
128	ITEEE13	Power Control in AC Isolated Microgrids With Renewable Energy Sources and Energy Storage Systems - 2015
129	ITEEE14	A Novel Method for Fault Location of Transmission Lines by Wide-Area Voltage Measurements Considering Measurement Errors - 2015
130	ITEEE15	A Constraint-Aware Heuristic Path Planner for Finding Energy-Efficient Paths on Uneven Terrains - 2015
131	ITEEE16	Integrated Planning for Transition to Low-Carbon Distribution System With Renewable Energy Generation and Demand Response - 2014
132	ITEEE17	Optimal Scheduling of Critical Peak Pricing Considering Wind Commitment - 2014
133	ITEEE18	Adaptive Electricity Scheduling in Micro grids - 2014
134	ITEEE19	360° sun tracking with automated cleaning system for solar PV modules - 2014

EMBEDDED : BIOMEDICAL

S.NO	CODE	PROJECT TITLE
135	ITBIO01	PSMPA: Patient Self-Controllable and Multi-Level Privacy-Preserving Cooperative Authentication in Distributed m-Healthcare Cloud Computing System
136	ITBIO02	An Implantable RFID Sensor Tag toward Continuous Glucose Monitoring - 2015
137	ITBIO03	Self-Powered Monitoring of Repeated Head Impacts Using Time-Dilation Energy Measurement Circuit - 2015
138	ITBIO04	Current and Future Challenges in Point-of-Care Technologies: A Paradigm-Shift in Affordable Global Healthcare With Personalized and Preventive Medicine
139	ITBIO05	Intelligent Disease Self-Management with Mobile Technology
140	ITBIO06	Smartphone-Centric Ambient Assisted Living Platform for Patients Suffering from Co-Morbidities Monitoring
141	ITBIO07	An Analysis of RFID Authentication Schemes for Internet of Things in Healthcare Environment Using Elliptic Curve Cryptography - 2015
142	ITBIO08	A Precise RFID Indoor Localization System with Sensor Network Assistance - 2015
143	ITBIO09	Real-Time Closed-Loop Control of Human Heart Rate and Blood Pressure - 2015
144	ITBIO10	Evaluation of Pressure Bed Sensor for Automatic SAHS Screening - 2015
145	ITBIO11	The Development of a Blood Leakage Monitoring System for the Applications in Hemodialysis Therapy - 2015
146	ITBIO12	System Architecture for Low-Power Ubiquitously Connected Remote Health Monitoring Applications With SmartTransmission Mechanism - 2015
147	ITBIO13	Automated Detection of Sleep Apnea and Hypopnea Events Based on Robust Airflow Envelope Tracking in the Presence of Breathing Artifacts - 2015
148	ITBIO14	Behavior Rule Specification-Based Intrusion Detection for Safety Critical Medical Cyber Physical Systems - 2015
149	ITBIO15	A Semantically Enriched Clinical Guideline Model Enabling Deployment in Heterogeneous Healthcare Environments - 2015
150	ITBIO16	Integrated Circuits and Electrode Interfaces for Noninvasive Physiological Monitoring - 2014
151	ITBIO17	A Survey on Wireless Body Area Networks: Technologies and Design Challenges - 2014
152	ITBIO18	Potential for Health Screening Using Long-Term Cardiovascular Parameters Measured by Finger Volume-Oscillometry: Pilot Comparative Evaluation in Regular and Sleep-Deprived Activities - 2014
153	ITBIO19	Patient Health Management System using e-Health Monitoring Architecture - 2014

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- Python Programming
- Ruby On Rails
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- Unix/Linux Shell Scripting

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- Web Programming - PHP & MySQL
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- SharePoint
- Silver Light
- Android Programming
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- Python Programming
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Diploma in PHP
Diploma in Power Systems
Diploma in VLSI
Diploma in Android
Diploma in Power Electronics

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Course Duration: ..... Fees: .....

Students Will Learn:

- Fundamental Elements of Programming
- Structured Programming Techniques
- Object Oriented Programming
- The Java Development Kit
- Java Language and Syntax
- Classes, Objects ,Methods and Variables
- Arrays and Data Structures
- String Handling
- Exception Handling
- File Handling and Streaming
- Socket Programming
- Utility and Pattern Matching
- Relational Database Management systems(RDBMS)
- Databases and JDBC
- Developing a GUI Using Swing

Course Description

This hands-on Java Programming course provides a practical oriented training in Java language. Students are entraining to the real world scenario to develop End to End and user interactive application programming using Java. The course emphasize on interactive sessions where students, led by the trainers having many years of practical experience as consultants in the industry will learn the topics by taking part in the sessions in a forum like discussions about the topic of the day rather than the trainer delivering a lecture to a bored audience as is the order of the day for most training classes. Classes are incremental which means each class takes off from where it was left from the previous day. Attending all classes is strongly advised. Its more advantage of Learning Java and it capability to get better career in IT Industry and Banking Sectors. There will be tests at the end of course and also has assignments on Java Course to empower student to understand better on Java Programming and advance skill to achieve application development by their own.

The Java Programming course covers the foundation of the Java language, those aspects of the language that will be used in every Java program. The topics covered in this course coincide with the topics on Oracle Java Programmer Certification Exam such as Object Oriented, distributed and data persisting application development. Java it's a technical language to enable any industry work flow model with rich User Interface components and utilities. Also the course is designed to leverage the participants' existing programming skills and to highlight the new and extended features of the Java programming framework as compared to other common languages. Comprehensive lab exercises provide hands on practice crucial to developing competence and confidence with the new skills being learned.

Course Prerequisites: Basics of Computer, Basic programming skills in a structured language. Knowledge and experience with Object-Oriented Concepts is helpful, but not mandatory.
Follow-up Courses: Java EE Web Application Development using JSP and Servlets , Web Application Development Using Spring, Hibernate, AJAX and Web Services, XML Programming

JAVA

Day1	Rest On Java Overview
	Know Oak tends to Java
	Any Queries For SCP Vs OOP (Structure Oriented Program and Object Oriented Program)
	JDK Fighting with JRE (JDK, JRE, API, Compilation and Execution, User Level Language & Machine Level Language)
	Advantage on Using Java in Real World
	First Install your JDK and JRE to know more
	Set your java environment variables(Path and ClassPath)
Day2	Success my First Program in Java
	Classes, Methods, Main
	Need to know my variables (Data Types, Array and its attributes)
	Operate my variables by Operator Effectively
	Practice Your Programming Skill
Day3	Constructor, Abstract and Encapsulate your Object
	Basic to know Constructor for instance
	Abstract your class for specificity
	Secure your Logic from Bad inputs (Encapsulation)
	Practice Your Programming Skill
Day4	Object Reusing On Inheritance
	Do You Know what is Inheritance
	Why we need Inheritance
	Get to know Various inheritance and its functionality
	Interface your skills on inheritance
	Construction on inheritance
	Practice Your Programming Skill
Day5	Enhance your Object in Many Forms
	Feel free to understand Polymorphism and its types
	Overload you object methods
	Override your object methods
	Constructor fall on Overload and override
	Practice Your Programming Skill
Day6	Refresh your Knowledge on Basic Java
	Get to refresh your Basic concepts in Java
	Understand better to write programming with OOPs
	Apply all Basic concepts with Real-world
	Practice Your Programming Skill
Day7	Access specifier and Modifier on Class, Methods and Variables
	Package your class in one sun or module wise
	Access your attributes from Public, Private, Protected
	Identify Applicable of modifier on Class, Methods and variables
	Practice Your Programming Skill
Day8	Exception and Error: Preevaluting On your Program
	Contribution of Exception Vs Error
	Runtime Exception and Compile Time Exception
	Try - Catch and Throws and Throwable
	Fill Pitably by your Try-Catch
	User Defined Exception
	Practice Your Programming Skill
Day9	Do constant, Static and Serialize and Transient your attributes and Objects
	Define your first constant variable by Final
	Apply Static on variable, Methods, Class and Block
	Serialize and De-Serialize your objects
	Transient your attribute from Serialization
	Practice Your Programming Skill
Day10	Build Your Programming Skill on Learning Basis
	Try your Best Skill with Java-OOPs and its possibilities Exception Handling
	Apply your learned skill on Real world to become Proficient
	Trick you brain on System or Application Programming with Java
Day11	Wrapper Variables, String Concepts
	What to know in Wrapper Classes
	Wrapper Vs Primitive Data Type with Auto Boxing
	String to manipulate and it function
	Isolation and Immutable with String, String Buffer Vs String Builder
	Practice Your Programming Skill
Day12	Easy to Understand Files and its properties, with Date Concepts
	Create your Files in System
	Files and its properties
	Date and Calender Utility
	Manipulate Various logic in System Files with Date
	Practice Your Programming Skill

Day13	Continue to know better understanding on Streaming Files
	Read your First Data from Files by InputStream
	Write your First Data to Files by Output Stream
	Buffering your File by Buffer Stream
	Appending your Data on File System
	Practice Your Programming Skill
Day14	Perform your process on multithreading
	Basic Threading on Java
	Creating Threads on Different Way
	Various States of Threads
	Priority and Methods in Threads
	Synchronize the object from multithreading
	Practice Your Programming Skill
Day15	Write your processor with File Manipulation On Real World
	How to apply the logic of Files in Real worlds
	Get to know threading of Files in Real World process
	Program your skill on Files with Custom
Day16	Brush your Brain with RDMS and SQL
	Basics of Database Architecture and its purpose
	Fundamental on SQL (Structured Query Language)
	Write SQL to define and admin your DB and its table
	Write SQL to manipulate data in Table
	Practice Your Programming Skill
Day17	Persist and Manipulate your Java Object with Database
	Database Connectivity on Java (JDBC)
	Various Types of Drivers and its purpose
	Statement to understand data manipulation in JDBC
	Fetch Result of Table by JDBC
	Dynamic Query Condition on JDBC Prepared Statement
	Practice Your Programming Skill
Day18	Knowledge to Know Peer To Peer, Centralized Network on Sockets
	Overview of Sockets
	Access and Finding Network properties by net package
	Write Simple Peer to Peer Socket Program
	Writing centralized Server to Data Distribution
	Practice Your Programming Skill
Day19	Distribute your object and execute logic on Remote computing
	What if Remote Execution
	Define your logic in Distributed Computing
	Write your first Remote interface and implementation
	Handle your Remote Exception
	Practice Your Programming Skill
Day20	Utility and Collection in Java
	Pattern Matching in Java
	Collection and Dynamic Arrays for Advance Data Processing
	Wrapping Object with Key Identifier
	Iterator and Enumeration for Dynamic Array Extraction
	Practice Your Programming Skill
Day21	Feel Free to Design User Interface
	Rails on Swing
	Frames, Panel and internal Frame in Swing
	Various Components in Java Swing
	Creation my first User Interface on Java Swing
	Practice Your Programming Skill
Day22	Step Your Java In Advance Element
	Digest Java on Core
	Client Side Vs Server Side Components
	Servlets on Overview
	JSP On Overview
Day23	Concentrated format and Concentrative Application On Real World with Java
	Case Study to Real Time Application
	Workshop for Project
Day24	PROJECT
	Workshop for Project
Day25	Revision class
Day26	SPIRO CERTIFICATION JAVA EXAM

Course Duration: ..... Fees: .....

Students Will Learn:

- PHP Syntax & Constructs
- Apache Web Server
- PHP Built-in Functions
- Arrays & Data Types
- Forms Handling
- Session Management
- Working with MySQL
- E-Commerce Techniques

Course Description

This hands on PHP Programming course provides the knowledge necessary to design and develop dynamic, database-driven web pages using PHP version 5. PHP is a language written for the web, quick to learn, easy to deploy and provides substantial functionality required for e-commerce.

This course introduces the PHP framework and syntax, and covers in depth the most important techniques used to build dynamic web sites. Students learn how to connect to database, and perform hands on practice with a MySQL database to create database-driven HTML forms and reports.

E-commerce skills including user authentication, data validation, dynamic data updates, and shopping cart implementation are covered in detail. Students also learn how to configure PHP and the Apache Web Server. Comprehensive lab exercises provide facilitated hands on practice crucial to developing competence and confidence with the new skills being learned.

Course prerequisites:

Basic computer skills and knowledge of HTML fundamentals. Prior programming experience is helpful but not required.

PHP

DAY 1	**Overview Of HTML**
	Introduction to HTML, History of HTML, Syntax of HTML, List of Form tags and their usages, List of Table tags and their usages, List of List tags and their usages, Creating a static webpage using HTML tags, Examples using HTML.
	LAB
	• Creating a sample webpage to display your bio data using related HTML tags. • Creating a sample webpage to display a class time table using TABLE tags.
DAY 2	**Overview Of CSS**
	Introduction to CSS, History of CSS, Syntax of CSS, Three kinds of Style Sheets, Exploring CSS Class and ID attributes, Formatting Text and fonts, Formatting Colors and Backgrounds, Positioning Block Level Elements.
	LAB
	• Creating a sample webpage to display your educational profile using related CSS attributes. • Creating a sample webpage to display your city information using <Div> and <Span> tags with related CSS attributes.
DAY 3	**Overview Of PHP**
	Introduction of PHP, Static vs. Dynamic Web Sites, Dynamic Content From Databases, Developing Dynamic Internet Applications, Client-Side Scripting vs. Server-Side Scripting, Overview of PHP Advantages and Capabilities, Configuring PHP.ini.
	Introduction to the Apache Web Server
	Apache Configuration Files, Configuring Apache for PHP, WWW Sites within Apache, Apache Virtual Hosts, Module Properties.
	LAB
	• Creating a sample webpage to display your city information using echo and print statements. • Explain about PHP.INI attributes and value changes and Apache Web server configuration.
DAY 4	**Variables, Constants, Data Types**
	Variable Types, Data Types, Variable Names (Identifiers), Variable Initialization, Type Strength, Variable Scope, Constants, Comments, Define and about echo, print.
	LAB
	• Variable Declaration and Initialization. • Creating a sample webpage to display personal information using all data types of PHP.
DAY 5	**Control Structures - I**
	The IF statement, Using the ELSE clause with IF statement, Nested IF clause, The SWITCH statement, Using the ? : operator.
	LAB
	• Creating a sample webpage to display grade message according to different marks of student using IF...ELSEIF... ELSE statements. • Creating a sample webpage to display current day of the week using SWITCH statements.
DAY 6	**Control Structures - II**
	The WHILE statement, The DO...WHILE statement, The FOR statement, BREAK and EXIT out of loops, Nesting loops.
	LAB
	• Creating a sample webpage to display numbers from 1 to 10 using FOR loop. • Creating a sample webpage to display even numbers below 50 using WHILE loop. • Creating a sample webpage to display odd numbers below 50 using DO...WHILE and FOR loop.
DAY 7	**PHP Operators**
	Arithmetic operators, Assignment operators, Increment/Decrement operators, Relational operators, Logical operators, String operators, Array operators.
	LAB
	• Creating a sample webpage to calculate sum, average of first 10 natural numbers using arithmetic operators. • Creating a sample webpage to check the student's mark is eligible to write exam or not using Relational operators. • Creating a sample webpage to display login form to check username and password [illegible]
DAY 8	**PHP Arrays**
	Single Dimensional Arrays, Multidimensional Arrays, Associative arrays, Accessing arrays, Getting the size of an array, Looping through an array, Looping through an associative array, Examining arrays, Joining arrays, Sorting arrays, Sorting an associative array.
	LAB
	• Creating a sample webpage to display the list of car names in ascending order using Array. • Creating a sample webpage to store the person's name as key and age as value in associative array and sort it according to value in ascending order and descending order. • Creating a sample webpage to store list of fruit names in array and display it in reverse order and count the fruits in array.
DAY 9	**PHP Strings**
	Formatting String for Presentation, Formatting String for Storage, Joining and Splitting String, Comparing String, Matching and replace Substring, String Functions – Syntax and Purpose.
	LAB
	• Creating a sample webpage to display the person's name and his age using formatted string function. • Creating a sample webpage to display a given string is palindrome or not using string functions. (Ex. Madam, Malayalam, Amma) • Creating a sample webpage to display "Welcome to World" in lowercase, uppercase, sentence case and capitalization of each word using string functions. • Creating a sample webpage to display the number of characters in "India is our country" and display it in reverse order using string functions.
DAY 10	**PHP Functions**
	What a function, Defining a function, Predefined functions, Returning value from function, User-defined functions, Dynamic function calls, Accessing variable with the global statement, Function calls with the static statement, Setting default values for arguments, Passing arguments to a function by value, Passing arguments to a function by reference, Testing for function existence.
	LAB
	• Creating a small webpage to display the name and age of the person using user defined functions. • Creating a small webpage to display the addition and multiplication of two numbers using user defined functions.
DAY 11	**Working With Regular Expressions**
	The basic regular expressions, Matching patterns, Finding matches, Replace patterns, Modifiers, Breakup Strings, Pre-Defined Regular Expression Functions – Syntax and Purpose.
	LAB
	• Creating a sample webpage to check the given domain name is valid or not using Regular Expressions. • Creating a sample webpage to check the given email id and phone number are valid or not using Regular Expressions.
DAY 12	**Working With File System**
	Creating and deleting a file, Reading and writing text files, Working with directories in PHP, Checking for existence of file, Determining file size, Opening a file for writing, reading, or appending, Writing Data to the file, Reading characters.
	LAB
	• Creating a sample webpage to write "Hello World" in the text file using PHP. • Creating a sample webpage to display the message from the text file using PHP.
DAY 13	**Working With Forms**
	Forms, Super global variables, The server array, A script to acquire user input, Importing user input, Accessing user input, Combine HTML and PHP code, Using hidden fields, Redirecting the user.
	LAB
	• Create a sample webpage to display an employee's information using an employee form. • Creating a sample webpage to display the server variables. (Ex. $SERVER_NAME, SERVER_ADMIN, SERVER_PORT, etc).
DAY 14	**PHP Cookies**
	Purpose of Cookies, Cookie Myths, Setting Cookies, Retrieving Cookies, Expiring Cookies, Deleting Cookies, Storing Arrays in Cookies.
	LAB
	• Creating a sample webpage to display the login form and store the username as cookie value in particular period of time and retrieve it.
DAY 15	**PHP Sessions**
	What is session, Starting a session, Working with session variables, Destroying session, Passing session IDs, Encoding and decoding session variables.
	LAB
	• Creating a sample webpage to display the login form and show username until the application closed.
DAY 16	**File Upload And Email Sending**
	Form Tags and Attributes – ENCTYPE, File Uploading Rules and Regulations, Default Setting Change for uploading large amount of File, Getting the File Details, Email Sending, MIME, SMTP and POP3 Protocols.
	LAB
	• Creating a sample webpage to upload the image files with the size not exceed [illegible]. • Sending e-Mail – [illegible].
DAY 17	**OOPs: Classes And Objects**
	Object oriented concepts, Define a class, Class attributes, Creating an object, Object properties, Object methods, Object constructors and destructors, Class constants.
	LAB
	• Creating a sample webpage to store your education details (Name, Age, Name of Class, Name of the School, Marks, Address) using the class and objects of PHP.
DAY 18	**OOPs: Inheritance**
	Static method, Class inheritance, Abstract classes, Final keyword, Object serialization, Checking for class and method existence, Iterators.
	LAB
	• Creating a sample webpage to display your personal details and education details using inheritance concepts (Parent Class: Personal Details and Child Class: Education Details). • Creating a sample webpage to display your company details using abstract class.
DAY 19	**Introduction to MySQL**
	What is RDBMS technology?, Introduction to SQL, Comparison between MYSQL, SQL SERVER and MS-Access, Configuring the MYSQL, Connecting to the MYSQL, Selecting a database, Creating a table.
	LAB

DAY 19	**Introduction to MySQL**
	What is RDBMS technology?, Introduction to SQL, Comparison between MYSQL, SQL SERVER and MS-Access, Configuring the MYSQL, Connecting to the MYSQL, Selecting a database, Creating a table.
	LAB
	• Creating a sample webpage to display server name, username and display message about connecting to the server. • Creating a sample webpage to display message about selecting database and create a table for store employee details.
DAY 20	**Creating Query**
	Displaying returned data on web pages, Finding the number of rows, Looping through database, Inserting data, Deleting data, Entering and updating data.
	LAB
	• Creating a sample webpage to display the employee details form and store it in the employee details table. • Creating a sample webpage to display list of the employee details and give options to the user to update and delete the details.
DAY 21	**Query With Different Kinds**
	Executing multiple queries, Constraints: Query with ORDERBY and GROUPBY, Wildcards, Like operator, Query with top keyword.
	LAB
	• Creating a sample webpage to display the employee details using ORDERBY, GROUPBY keywords, WILDCARDS, LIKE and TOP operators.
DAY 22	**Query Joining**
	Inner Join, Left Join, Right Join, Full Join, Union, Aggregate functions, Scalar functions.
	LAB
	• Creating a sample webpage to display employee details find maximum, minimum and total salary using Aggregate functions, WHERE LIKE & UNION.

PHP

DAY 23	**Enabling E-Commerce**
	Required Characteristics of an E-Commerce Site, Authentication and Authorization, Data Validation, Building a Custom Shopping Cart, Persisting Shopping Cart Data Over Multiple Pages, Criteria for Evaluating Third Party Shopping Cart Solutions, Open Source vs. Commercial Shopping Cart Solutions, Order Processing via the Web.
	LAB
	• Creating a sample shopping cart website with sample products and order processing of products.
DAY 24	**Content Management Systems (CMS)**
	Introduction of CMS, The benefits of using a CMS, Overview of CMS Tools and Comparison between the tools (Wordpress, Joomla, etc), Install and Configuring the CMS Tool – Wordpress, Super User usage in CMS Tool, Content Manipulation in Wordpress Blog.
	LAB
	• Creating a sample Blog by using the Wordpress and Content Manipulation.
DAY 25	**PROJECT BASED ON PHP PROGRAMMING**
DAY 26	**PROJECT BASED ON PHP PROGRAMMING**
DAY 27	**REVISION CLASS**
DAY 28	**REVISION CLASS**

Course Duration: ..... Fees: .....

Students Will Learn:

- HTML Fundamentals
- Developing and Using Cascading Style Sheets (CSS)
- Building Forms and Tables
- DOM (Document Object Model)
- Positioning Block-Level Elements
- JavaScript Syntax
- Form Validation
- Scripting CSS

Training methodology:

This hands on Web programming class provides a thorough introduction to implementing a full-featured Web site on the Internet or corporate Intranet, including implementation of dynamic content using JavaScript and related tools. Starting with thorough coverage of HTML and Cascading Style Sheets (CSS), the course progresses to the implementation of dynamic client-side content using JavaScript. Hands-on exercises are performed throughout each day to demonstrate key concepts.

Course Prerequisites:

Basic personal computer skills and basic Internet knowledge

WEB DEVELOPMENT USING HTML, CSS AND JAVA SCRIPT OVERVIEW:

DAYS	CONTENTS
DAY 01	**Overview Of HTML** • Introduction of HTML • History of HTML, markup languages, latest version of HTML • Introduction to HTML tags & HTML syntax • Versions of HTML **LAB** • Creating a sample webpage **using all the** HTML **tags listed below: <html>,<head>,</title>,<meta>,<body>,<p>, ,<hr>,<h1>,...</h6>, </html>**
DAY 02	**Tables** • Adding Tables to a Page • Working with <table>, <thead>, </body>, <tr>, <td>, <th> and <caption> Elements • Table Attributes • Creating Nested Tables **LAB** • Creating a sample webpage to display class time table using TABLE tags.
DAY 03	**Constructing Forms** • <form> Tags and Attributes • Single-line and Multi-line Text Fields • Radio Buttons and Checkboxes • Dropdown and Selection Lists • Submit and Reset Buttons **LAB** • Creating a sample webpage to display a student application form using FORM elements in HTML
DAY 04	**LISTS** • Types of Lists • Ordered Lists • Unordered Lists • Definition Lists • Creating List Items Using the Tag • Creating Nested Lists **LAB** • Creating a sample webpage to display the list of any 10 fruits using ORDERED LISTS • Creating a sample webpage to display the list the world wonders using UNORDERED LISTS
DAY 05	**Anchor & Text Tags** • Anchor tags • Links with images and buttons • Links to send email messages • Text fonts and styles • Background colors/images • Marquee Behavior **LAB** • Creating a sample webpage using Links, images, and Marquee • Creating a sample webpage(s) using only HTML Tags.
DAY 06	**Overview Of CSS** • Introduction Of CSS • History Of CSS, Latest Version Of Html • Introduction To CSS Attributes & Syntax • Three Kinds Of Style Sheets **LAB** • Creating a sample webpage using three kinds of style sheets
DAY 07	**Exploring CSS Class and ID Attributes** • Defining The CSS Class Attribute & ID Attribute • Creating Block-Level HTML Tags & Inline HTML Tags **LAB** • Creating a sample webpage using CSS class and id
DAY 08	**Formatting Text and Fonts** • Font Families • Font Size • Kerning, Leading, and Indenting **LAB** • Creating a sample webpage using different fonts with different font families.
DAY 09	**Formatting Colors and Backgrounds** • The Color Attribute • The Background Attribute • Background Colors and Images **LAB** • Creating a sample webpage using different background images and colors for different areas

DAY 12	Templates • Creating template using table tag • Creating template using div tag LAB • Creating a simple webpage using table tags only. • Creating a simple webpage using div tags only.
DAY 13	Overview of Javascript • Introduction of Javascript • Embedding JavaScript in an XHTML Document • Evolution of the JavaScript Language • JavaScript Versions and Browser Support • Inline JavaScript • Linking Web Pages to External JavaScript Files • JavaScript Using <script> Tags and Attributes • Defined scripts • <noscript> Tags LAB • Creating a simple webpage to display "Hello World" using XHTML. • Creating a simple webpage to display "Welcome To World" using Document.write() and inline JavaScript.
DAY 14	Statements and Operators • Variable Declarations • Assignment Operators and Statements • Arithmetic Operators • Logical Operators • Comparison Operators • String Operators • Conditional Operators • Operator Precedence LAB • Creating a small application to add, subtract, multiply, divide two numbers using JavaScript operators. • Creating a small application to add two strings using + operator. • Creating a small application to check the given age is eligible to vote or not using comparison operator.
DAY 15	Implementing Control Constructs • Introduction to Conditional and Looping Constructs • The if else Statements • The do while Statements • The for in Statements • The switch Statement LAB • Creating a small application to show the message according to current time using IF ELSE statements. • Creating a small application to display the numbers from 1 to 20 using FOR statements. • Creating a small application to display the numbers less than 15 using WHILE statements. • Creating a small application to display the week day using SWITCH statements.
DAY 16	Implementing Arrays • Using Arrays in JavaScript • Predefined JavaScript Object Arrays • Creating Arrays • Reading and Writing to an Array • Common Array Properties and Methods LAB • Creating a small application to show list of car names using JavaScript arrays. • Creating a small application to sort the given numbers using JavaScript arrays.
DAY 17	Implementing Functions • Defining Functions • Invoking Functions • Named and Anonymous Functions • Passing Arguments • Local vs. Global Variables • Using the return Statement LAB • Creating a small application to show the person name and his job using JavaScript functions. • Creating a small application to show the multiply of given two numbers (passing arguments) using JavaScript functions.
DAY 18	Javascript Objects • The JavaScript Browser Object Model • JavaScript Object Properties • Object Methods • The new Keyword • The this Keyword • Creating New Object Instances Using Constructor Functions • String, Date and Array Objects LAB • Creating a small application to show the person's personal details using JavaScript objects. • Creating a small application to show today date using JavaScript Date object. • Creating a small application to show "Hello World" in lowercase and uppercase using JavaScript String methods.
DAY 19	Cookies • Overview of JavaScript Cookies • Session and Persistent Cookies • Using Cookies on a Web Page • Common Uses of JavaScript Cookies LAB • Creating a small application to store the name and display welcome message at particular period of time using JavaScript Cookies.
DAY 20	Common Applications • Form Validation and Testing • Working with Regular Expressions • User Interaction • Local Form Processing • Object Detection • Creating New Windows • Adding Content to a Window • Browser Awareness Using the navigator Object • Interactive Graphics LAB • Creating a student details form and validate for empty, number, and email using JavaScript. • Creating a small application to show the given letter appears or not in "Hello World" using JavaScript Regular Expressions.
DAY 21	PROJECT USING HTML,CSS,JAVA SCRIPT
DAY 22	PROJECT USING HTML,CSS,JAVA SCRIPT
DAY 23	REVISION CLASS
DAY 24	REVISION CLASS
DAY 25	SPIRO CERTIFIED WEB DEVELOPER EXAM

Course Duration: ..... Fees: .....

Students Will Learn:

- .NET Framework Base Class Library
- Using Windows Forms Controls C# Syntax
- Application Design
- Controlling Program Flow Using Conditional Tests and Loops
- Object-Oriented Programming Concepts
- Building and Using Classes
- Arrays and Data Collections
- Exception Handling
- Working with Files
- String Manipulation
- GUI Programming Concepts
- Database Access Using ADO.NET
- Building N-Tier Applications
- Working with Modal and Modeless Forms
- Interacting with Databases
- Using Data Binding
- Building and Calling WCF SOAP Services
- Working with Files and the File System Managing Run-time Exceptions
- Using Web Forms & Handling Events
- Working with ASP.NET Server Controls
- Designing Master Pages
- Managing State
- Interacting with Databases
- Using ASP.NET Data Bound Controls
- Building Secure Web Sites Building Windows Forms Applications

Course Description

This hands on course provides students with hands on experience using Visual Studio to create desktop Windows Forms and web applications using the .NET 4.0 Framework using C#. The course provides a thorough introduction to the C# programming language, including coverage of the essentials of the C# programming language, built in data types, operators, control structures, classes and methods, collections and exception handling.

Students then learn how to leverage the power of the .NET Framework to build desktop and Web applications. Students learn how to build Windows and Web Forms applications and use with a variety of controls to create sophisticated user interfaces. Students also learn how to use the Background Worker to perform asynchronous operations.

Students also learn how to use ADO.NET to interact with databases and XML files. Students learn how Windows Forms uses data binding to display data in controls such as the Data Grid View and Chart. Students also learn how to build and interact with simple WCF SOAP Web Services.

Comprehensive labs provide the students with extensive experience creating and deploying Windows Forms-based desktop applications.

Course Prerequisites: Familiarity with computers. Knowledge of fundamental HTML syntax is helpful, but not required.

Follow-up Courses: Windows Presentation Foundation (WPF) Programming Using C#, WCF Programming Using C#, Silver Light Programming, XML Programming.

DAY 1	.NET EXAM WORK 4.0
	About .Net Framework 4.0 Common Language Runtime- Base Class Library, Namespaces- Understanding the Role of Namespaces- Defining Custom Namespaces- Referencing Members in a Namespace- Common Type System (CTS)- Intermediate Language- Assemblies- Stack and Heap Memory- Garbage Collection- .Net Compilers
	COMPARISON OF .NET FRAMEWORKS
	Comparison of Framework 1.0/1.1/2.0/3.0/3.5/4.0/4.5
DAY 2	INTRODUCTION TO VISUAL STUDIO .NET 2010
	Creating a Project- Using the Code Editor- Debugging Syntax Errors- Using Visual Studio Help- Keyboard Shortcuts- Compiling, Running and Debugging your first Program- Using the MSDN Library
	INTRODUCTION TO C#
	C# Basic Data types and Statements-Overview of Programming Structure and Concepts- Understanding Data Types-Working with Variables, Constants and Literals-Reference Types & Value Types, Boxing and Unboxing-Conditional Constructs- Working with Static Constructs-Working with Arrays- Working with while Constructs-Working with for and for each -Goto, break, Continue, Return-Formatting Numbers, Date and Times-Using Console I/O.
DAY 3	INTRODUCTION TO VB.NET
	VB.Net Basic Data types and Statements-Overview of Programming Concepts-Understanding Data Types-Working with Variables, Constants and Literals-Reference Types & Value Types, Boxing and Unboxing-Conditional Constructs- Working with Static Constructs-Working with Arrays- Working with while Constructs-Working with for and for each -Goto, break, Continue, Return-Formatting Numbers, Date and Times-Using Console I/O.
DAY 4	OBJECT ORIENTED PROGRAMMING
	Understanding Object-Oriented Concepts, Designing Classes & Constructors, Coding Properties and Methods, Initializing Objects with Constructors, Overloading Constructors, Declaring and Instantiating Objects, Using the using Statement, Calling and Methods, Working with Shared Data- Interrelated Methods.
DAY 5	ENCAPSULATION
	Creating and using Properties
	USING PROCEDURES TO MODULARIZE CODE
	Polymorphism, Defining and calling Subroutines, Defining and calling Functions, Understanding Variable Scope, Overloading Procedures, Passing Parameters
DAY 6	UNDERSTANDING OF LOGIC VS. BY REFERENCE PARAMETERS
	Understanding the Call Stack
	BUILDING INHERITANCE HIERARCHIES
	Understanding Inheritance, Building Derived Classes, Understanding Constructors in Derived Classes, Defining and using Protected Class Members, Understanding Polymorphism, Defining Overridable Methods, Overriding Methods
DAY 7	ADVANCED INHERITANCE TECHNIQUES
	Understanding Abstract Classes, Defining Abstract Classes, Inheriting from Abstract Classes
	INTERFACE
	Understanding about Interface, Types of Interface, Abstract vs Interface.
DAY 8	DELEGATES & EVENT HANDLERS
	Overview of Delegates, When to use Delegates-Instead of Interfaces, Named Methods, Anonymous Methods, Calling Static Functions, Calling Member Functions, Multicasting, Single-cast vs. Multi-cast Delegates, Working with Synchronous and Asynchronous Delegates, Understanding the Relationship between Delegates and Events, Simple Event, Handling and Raising Events, Creating Event Handlers, Default Event Handlers, Associating Event Handlers at Run Time.
DAY 9	REMOTING
	What is Remoting?, .NET Framework Remoting Architecture, Making Objects Remotable, Interface by Ref and Value, Object Activation and Lifetime Channels, Configuration of Remote Applications, Version Information in Remoting, Security in Remoting, Asynchronous Remoting, How to Call the Methods of a Remote Object Asynchronously, Issues with Calling Methods of Remote Objects Asynchronously, Callbacks and Event Remoting.
DAY 10	WORKING WITH DATA COLLECTIONS
	Understanding Arrays, Declaring and Instantiating Arrays, Iterating through Arrays, Working with Subscripts Arrays Methods, Sorting, Searching and Resizing, Passing Arrays to Methods, Working with parameter array Parameters, Working with Command-line Arguments, Understanding .NET Collections, Managing Data Using List, Managing Data Using Dictionaries, Queues, Stacks, Working with LINQ, Making LINQ Queries, Enumerating LINQ Query Results, Working with Anonymous Types, Using Extension Methods with LINQ.
DAY 11	EXCEPTION HANDLING
	Understanding Exception Handling, using try/catch to Handle Exceptions, Working with the Exception Class, Understanding Exception Propagation, Using Finally to Manage Cleanup Processing, Throwing Custom Exceptions, Implementing and Using Exception Stack.
	WORKING WITH FILES, DIRECTORIES AND STREAMS
	Using the System.IO Namespace, Discovering Drives, Working with Directories, Working with Files, Parsing a File Path, Understanding Streams, Working with FileStream, Reading and Writing Text Files, Understanding other Types of Streams, Using LINQ with Files.
DAY 12	ATTRIBUTES AND REFLECTION
	ATTRIBUTES
	Intrinsic Attributes, Attribute Targets, Applying Attributes, Custom Attributes, Declaring an Attribute, Naming an Attribute, Constructing an Attribute, Using an Attribute
	REFLECTION
	Viewing Metadata, Type Discovery, Reflecting on a Type, Finding a Type's Members, Finding Type Methods, Finding particular Type members, Reflection Emit, Dynamic Invocation with InvokeMember(), Dynamic Invocation with Interfaces, Dynamic Invocation with Reflection.Emit
DAY 13	SERIALIZATION & DESERIALIZATION
	How Serialization Works, Uses for Serialization, Making an Object Serializable, Implementing the Serializable Interface, Binary and XML Serialization, Binary Serialization, XML Serialization, SOAP Serialization, Basic and Custom Serialization, Basic Serialization, Custom Serialization, Serialization Guidelines, About Deserialization.

DAY 14	THREADING
	Threading Objects and Features, Creating and executing a thread, Passing Data to Threads & Returning Data from Threads, Synchronization of threads, interaction between threads, Using a thread pool, using a mutex object to protect a shared resource, lock statement, Interlocked, ReaderWriterLock, Mutex, con method, Sleep, Pausing and Resuming threads, Thread Safety, Problems with Threads.
DAY 15	USING CONTROLS
	Working with Windows Forms Controls, Using Text Controls, Using Button Controls, Using Selection Controls, Using List Controls, Using Container Controls, Using Image Controls, Using UpDown Controls, Using the DrawHandler and ToolTipProvider Controls.
	WORKING WITH MENUS, TOOLBARS AND STATUS BARS
	Working with Menus, Working Up with Toolbars, Working with Status Bars
	WINDOWS FORMS APPLICATIONS
	Windows Forms Application, Setting Form Properties, Understanding the Life cycle of a Form, Using the Windows Forms Designer, Using the MessageBox Class, Using a .config file.
DAY 16	WORKING WITH FORMS
	Understanding Model vs Modeless Forms, Displaying Modal Forms, Working with DialogResults, Retrieving Data from Modal Forms, Displaying Modeless Forms, Working with State in Modeless Forms, Using the Common Dialogs
DAY 17	INTRODUCTION TO SUBMITTICE SERVERS
	Introduction to SQL SERVER, SQL Server - Management Studio, Create a Database, Tables, Views, Constrains, Stored Procedures, Functions, Joins, Triggers, User Logins, Server Roles, Backup and Restore, About Query execution Plan
DAY 18	ADO.NET
	Understanding the ADO.NET, Object Model, Connected vs. Disconnected Access, using a Connection to Connect to a Data Source, Using a Command,command builders and Data Adapter to Execute Queries and Stored Procedures, Using a DataReader to Work with Cursors, Using the DataSet with Disconnected Data, Using DataAdapters with DataSets, Implementing Data Work from Enterprise Library.
DAY 19	DATA BINDING
	Binding to Simple and Complex Controls, Manually Binding Controls, Using the BindingSource Control, Using the BindingNavigator Control, Using the DataGridView Control, Using the Chart Control
DAY 20	CROSS-PROCESS IPC
	Creating XML Documents, Attributes, XML Schema Basics, XML Schema Data Types, XML Schema validation, XSLT Basics, The XSLT Stylesheet and XPath, XSLT Functions, XML Namespaces
DAY 21	CROSS-PROCESS IPC TECHNOLOGY
	Overview Of HTML, Overview of CSS, Overview of JavaScript
DAY 22	CROSS-PROCESS IPC ASP.NET
	Client-Side vs. Server-Side Code Execution, Asp.Net Handlers and Modules, Understanding the ASP.NET HTTP Pipeline, Working with HTML and HTML5, Understanding ASP.NET Application Folders, Using Web.config.
DAY 23	CREATING WEB FORMS USING ASP.NET
	Using Page Directives, Working with the Code-Behind Model, Understanding the Life cycle of a Web Form, Handling Page Events.
	MASTER PAGES
	Understanding the Master Page Architecture, Designing a Master Page, Designing Content Pages.
DAY 24	MAINTAINING STATE
	Maintaining State within ASP.NET Applications, Using the Application Object, Using the Session Object, About In Proc, About SQL Server Session Management, About State Server, Using the ViewState Object, Reading and Writing Cookies, Using the Query String.
DAY 25	SECURING ASP.NET APPLICATIONS
	Understanding the ASP.NET Security Model, Authentication, Windows Authentication, Form Authentication, Passport Authentication, Impersonation, Role Based Authentication, Authorizing User Requests, Using the Login Control, Using the ASP.NET Web Site Administration Tool, Implementing SSL.
DAY 26	THEMES AND CONTROL SKINS
	Skins, Creating CSS for Themes, Theme Graphics and Other Resources, Assigning Themes, Page Themes, Global Themes, Theme Settings Precedence, Properties You Can Define Using Themes, Themes vs. Cascading Style Sheets, Security Considerations
	PERSONALIZATION AND USER PROFILES
	About Personalization, Managing Personalization Data, Managing User Profiles, Data Storage, Pages and User Profiles, Handling Anonymous Users, Internet Implementation.
DAY 27	USING CONTROLS
	Working with Web Controls, Using Text and Button-based Controls, Using List Controls, Examining Other Web Server Controls, Defining and Using User Controls.
	HANDLING EVENTS
	Writing Event Handlers, Sharing Event Handlers, Understanding PostBack versus Non-PostBack Events, Using Global.asax

Unit 18	DATA BINDING
	Understanding ASP.NET Data Binding, Examining ASP.NET Data Bound Controls, Using the ListBox Control, Using the DropDown Control, Using the ListView Control, Using the DataPager Control, Using the FormView Control, Using the Chart Control.
Unit 19	CACHING
	ASP.NET Caching Overview, Caching ASP.NET Pages, Caching Portions of an ASP.NET Page, Caching Application Data, Caching Multiple Versions of a Page, Caching Portions of an ASP.NET Page, Dynamically Updating Portions of a Cached Page, Caching in ASP.NET with the SqlCacheDependency Class, Cache Configuration in ASP.NET, implementing and Using cache block from Enterprise Library.
	TRACING
	Enabling Tracing for a Page, Writing Trace Messages, Enabling Application-Level Tracing , Reading Trace Information , Program-trace.axd and trace messages, Application-level tracing.
Unit 20	WEB SERVICES
	What is Web Services? Why Web Services? About SOAP Messages, SOAP Header, SOAP Body, SOAP Encoding, Making Objects Serializable, SOAP Extension, SOAP Message Encoding, using XML attributes to customize the SOAP Message, About WSDL, UDDI, Creating a simple Web Service, About Web Method and Attributes, Maintaining State in Web Service, Returning Object from Web Service, Consuming a web Service, The Web Services Utility.
Unit 21	JAVA AND TOOLKIT
	Core Build, Tool kit.
Unit 22	DEPLOYING ASP.NET APPLICATIONS
	Understanding Deployment Issues, Configuring an ASP.NET Application for Deployment, Using ASP.NET Deployment, Using Visual Studio to Deploy a Web Application.
Unit 23	OVERVIEW OF ASP.NET MVC
	Overview of Model-View-Controller Design Pattern,ASP.NET MVC Application Architecture, Understanding the MVC Execution Process, Building an ASP.NET MVC Application Using Visual Studio, Visual Studio MVC Project Templates, Using a web.config File.
	INTEGRATING ASP.NET MVC AND WEB FORMS
	What are Web Forms, Using Web Forms in an MVC Application, Using MVC in a Web Form Application, Linking to MVC Actions from Web Forms.

Day 24	DEVELOPING CONTROLLERS
	Creating Controllers, Defining Action Methods, Mapping URLs to Action Methods, Understanding ActionResult Types, Working with ViewData and ViewBag.
	DEVELOPING VIEWS
	Creating Views, Understanding View Engines, Using the ASPX View Engine, Using the Razor View Engines, Using HTML Helpers, Adding Validation, Working with Strongly-Typed Views, HTML5 Project Templates.
	DEVELOPING MODELS
	Creating Model Classes, Working with the Entity Framework, Working with LINQ to SQL, Using Scaffolding.
Unit 25	ROUTING CONTROL
	Understanding Routing in ASP.NET MVC, Defining URL Routes, Registering Routes, Adding Constraints to Routes, Debugging Routes.
	SECURING MVC APPLICATIONS
	ASP.NET Security, Windows vs Forms Authentication, Configuring Authentication, Configuring Authorization, Building a Secure Web Site, Defending against Attacks, Cross-site Scripting, Session Hijacking, SQL Injection, Input Forgery.
	MVC UNIT TESTING
	Test-Driven Development, Designing Test Cases, Creating Unit Tests, Using MS Test, , Using Moq, Dependency Injection.
Unit 26	REVISION CLASS
Unit 27	REVISION CLASS
Unit 28	PROJECT BASED ON WINDOWS APPLICATION
Unit 29	PROJECT BASED ON WEB APPLICATION
Unit 30	SPIRO CERTIFIED .NET PROGRAMMER EXAM

Course Duration: ..... Fees: .....

Students Will Learn:

- Creating Android Apps for Mob ile Devices
- Testing Apps with the Android Simulator
- Creating User Interface (UI) Layouts
- Handling Screen Rotation
- Using Standard Widgets

Course Description

This hands-on course conveys the fundamental skills necessary to deploy Android Apps on mobile devices such as phones and tablets. Attendees will design and build a variety of Android Apps throughout the course. Previous Java programming knowledge is not essential, but basic programming experience is required. Java code used in the exercises is fully explained.

The course emphasizes proper layout of the user interface (UI), including how to add buttons, labels, textboxes, checkboxes, images and other widgets to the UI. Students will learn how to utilize Android's XML-based layout system, which builds the UI with containers and widgets, as well as how to set wallpapers and add menus to the UI. Students practice with dialog techniques including the display of popup messages.

Students also learn how to handle screen rotation, and how to define UIs so they can adjust for different screen sizes. The course teaches students how to accept user input from keyboards (either externally attached or from the built-in keyboard), how to use the date/time picker, and how to present users with choices using Selection Lists. Students will learn how to add tabs to the UI, as well as how to display HTML content using the built-in WebKit browser.

Course Prerequisites:

Prior experience with a scripting or programming language is required. Java skills are helpful but not required.

DAY	CONTENT
Day 1	**What Is Android?** Android as A Smartphone OS, Android Apart From Smartphone, Why Android? Design Features.
Day 2	**History of Android** Foundation & Google Acquisition, Open Handset Alliance & Android Open Source Project.
Day 3	**Android Phone** Review of Android, Customizable Interface, Application, Android Versions.
Day 4	**Using Android Phone** Google Accounts, Importing Contacts, Synchronizations, Audio System, Launcher (Home Screen), File System, Apps & Games, USB Debugging, Developer Options.
Day 5	**Advanced User Interface** Getting Started, Connectivity, Communication, Palv Store, Settings.
Day 6	**Types of Android App** Native App, Hybrid App, Mobile Web App, Online App, Offline App.
Day 7	**Android Architecture & Framework** Applications, Application Frameworks, Libraries, Android Runtime, Linux Kernel.
Day 8	**Knowing Development Environment** Android SDK Feature, Emulator, AVD Manager, SDK Manager, Dalvik debug Monitoring Service (DDMS), Log Cat.
Day 9	**Setting Up Development Environment** System Requirements, Get The Android SDK, Get The Java Run Time & Java SDK.
Day 10	**Simple Mobile App Development** Creating Project in Eclipse, Running Application In Emulator & Real Device.
Day 11	**Application Fundamentals** Device Compatibility.
Day 12	**Android Components** Intent & Intent Filters, Intent Matching, Common Intent.
Day 13	**Activities** Activity Explanations, Fragment.
Day 14	**Android Components Contd** Loader, Task & Back Stack.
Day 15	**Android Components** Broadcast Receiver, Services, Content Providers.
Day 16	**Other Components** App Widgets, Process & Threads.
Day 17	**User Interface** UI Overview, Layout, Input Control, Input Events, Menus, Actions Bar, Settings, Dialogs, Notification, Toasts, Search, Drag & Drop, Accessibility.
Day 18	**Styles and Themes** Overview of Styles and Themes.
Day 19	**Custom Components** Overview of Custom Components.
Day 20	**Manifest File Settings & Creation** Androidmanifest Xml, Element of Androidmanifest Xml, Elements of Application Components, Structure Of Androidmanifest Xml.
Day 21	**Action Bar** Adding the Action Bar, Setting Up the Action Bar, Adding Action Buttons, Styling the Action Bar.
Day 22	**Menu** Defining Menu in Xml, Creating Option Menu, Creating Context Menu, Popup Menu, Creating Menu Group.
Day 23	**Managing the Activity Lifecycle** Starting an Activity, Pausing & Resuming An Activity, Stopping & Restarting An Activity.
Day 24	**Building a Dynamic UI With Fragments** Creating a Fragment, Building A Flexible UI, Communication With Other Fragments.
Day 25	**Simple Storage Mechanism** Shared Preferences, Internal Storage, External Storage.
Day 26	**Sharing Simple Data** Sending Simple Data to Other Apps, Receiving Simple Data From Other App, Adding Easy Share Action.
Day 27	**Design** Design Principle, UI Overview.
Day 28	**Building Blocks** Tabs, Lists, Grid Lists, Scrolling, Spinners, Buttons, Text Fields, Seek Bars, Progress & Activity, Switches, Dialogs, Pickers.
Day 29	**Resources** Overview, Providing Resource, Accessing Resource, Handling Runtime Changes, Localization, Resource Types.
Day 30	**Support Different Devices** Support Different Language, Support Different Screens, Supporting Different Platform Version.
Day 31	**Designing For Multiple Screens** Support Different Screen Size, Support Different Screen Densities, Implement Adaptive UI Flow.

ANDROID

APPS DEVELOPMENT

Course Duration: ..... Fees: .....

Students Will Learn:

- Creating Android Apps for Mob ile Devices
- Testing Apps with the Android Simulator
- Creating User Interface (UI) Layouts
- Handling Screen Rotation
- Using Standard Widgets

Course Prerequisites :

Prior Experience with a scripting or programming language is required. Java Skills are helpful but not required.

DAY	CONTENT
DAY 1	Vision and architecture A different kind of phone ,Windows phone architecture ,Building and delivering apps ,Getting started with "Hello World"
DAY 2	App model and navigation The app lifecycle ,The page model ,Navigation and state ,Navigation options ,File type and URI associations
DAY 3	UI visuals and touch Phone UI elements ,Working with User Controls vs. custom controls , Re-templating controls ,Resources ,Implicit styles ,Dependency and attached properties ,The app bar and notification area ,Standard panels ,Nested events ,Logical touch gestures ,Manipulation events, Mouse events ,Frame Reported events ,Keyboard input
DAY 4	Data binding and MVVM Simple data binding and I Notify Property Changed ,Data binding collections ,Type value converters ,Element binding ,Data validation ,Separating concerns
DAY 5	Phone and media services Launchers and Choosers ,Search extensibility ,Audio and video APIs ,Media playback ,Audio input and manipulation ,Music and Videos Hub ,The Clipboard API
DAY 6	Sensors Orientation ,Phone hardware ,Sensor APIs ,The accelerometer ,Compass ,Gyroscope ,Motion APIs
DAY 7	Web connectivity The Web Client and Http Web Request classes ,The Web Browser control ,Live SDK ,Facebook ,Twitter ,The Data Sense feature
DAY 8	Web services and the cloud Web services ,WCF data services ,Web service security ,Windows Azure
DAY 9	Background agents Background tasks ,Alarms and reminders ,The Background Transfer Service ,Generic Background Agents ,Background audio
DAY 10	Local storage and databases Local storage ,LINQ to SQL ,SQLite
DAY 11	App publication Preparing for publication ,The publication process , Dev Center reports ,Updates ,Beta testing ,Versions ,Selective targeting
DAY 12	Profiling and diagnostics Debugging, Tuning, Profiling, Performance best practices.
DAY 13	Porting to Windows Phone 8 and multi-targeting Lighting up a Windows Phone 7 App with Windows Phone 8 features ,Quirks mode and breaking changes ,Managing platform-specific projects ,Windows Phone 7.8 SDK ,Unit coverage for Windows Phone 7.x apps
DAY 14	Tile and notifications Tile icon and templates ,Secondary tiles ,Push notifications ,Push notification server ,Push notification client ,Registration web service ,Additional server features ,Additional client features ,Push notification security
DAY 15	Contacts and calendar Contacts ,Calendar
DAY 16	Camera and photos Acquiring a single photo ,Working with the media library ,Capturing photos ,Extending the Photos Hub ,Lenses ,Sharing photos
DAY 17	Networking and proximity Sockets ,Finding your app on nearby devices ,Connecting to other Bluetooth devices ,NFC api
DAY 18	Location and maps Architecture ,Determining the current location (Windows Phone 7),Bing maps (Windows Phone 7),Getting location (Windows Phone 8),Maps API (Windows Phone 8),Continuous background execution (Windows Phone 8),Testing location in the simulator ,Location best practices
DAY 19	Speech Voice commands ,Speech recognition in apps ,Text-to-Speech
DAY 20	Monetizing your app Advertising ,Trial mode ,In-app purchase
DAY 21	Enterprise apps Windows Phone for business ,Managed vs. unmanaged phones ,Unmanaged phones ,Company Apps ,Building a company hub app
DAY 22	Native development Native code overview ,An introduction to modern C++,Managed/native inter op ,Writing server/resource code in C++,Using Windows Runtime classes in C++,Win32 API ,Component Object Model (COM)
DAY 24	Windows 8 convergence Windows 8 and Windows Phone 8 compared ,Sharing code between Windows and Windows Phone
DAY 25	Games and DirectX/3D DirectX/3D primer,DirectX/3D differences on Windows Phone ,Visual Studio project types,DirectX/3D and XAML projects ,Structure of the basic DirectX/3D app ,Minimal DirectX/3D app ,Touch input,DirectX/3D and Direct XTK

Course Duration: ..... Fees: .....

Big Data Analytics

This course is designed for all those who are keen to get into analytics and become future Data Scientists

What is Big Data Analytics ?

Big Data is a popular term used to describe the exponential growth, availability and use of information, both structured and unstructured. It is imperative that organizations and IT leaders focus on the ever-increasing volume, variety and velocity of information that forms BigData.

Big data analytics is the process of examining large data sets containing a variety of data types -- i.e., big data -- to uncover hidden patterns, unknown correlations, market trends, customer preferences and other useful business information. . Hadoop is the core platform for structuring BigData, and solves the problem of making it useful for Analytics

Students Will Learn:

Big Data academic programming focuses on providing students with knowledge and skills in mathematics, computer science, and management information systems to become effective programmers, developers, and analysts in Big Data.

Course Prerequisites:

Engineering students, Science students with Mathematics or statistics background with good analytical skills. The good news is that - as this is an applied course, the focus will be on real-world case studies rather than just the theory.

Follow-up Courses:

Advanced Business Analytics with R language

DAY	CONTENT
DAY 1	**What is Big Data? Big data characteristics, Challenges, Applications** Traditional approach and Hadoop approach
DAY 2	**Hadoop Architecture overview** Anatomy of a Map Reduce Job
DAY 3	**Hadoop Installation** • Pre-installation Setup • SSH Setup and Key Generation • Installing Java • Downloading Hadoop • Hadoop Operation Modes , Setting up Hadoop
DAY 4	**Sample program in Map Reduce** Word Count implementation
DAY 5	HDFS basic command-line file operations
DAY 6	Map Reduce monitoring
DAY 7	**HDFS with Java API** Sample Java program in HDFS , compile and execute in HDFS mode
DAY 8	**Complex Hadoop Map reduce Applications** Hadoop Data types Implementing a custom Hadoop writable data type
DAY 9	**Implementing a custom Hadoop key type**
DAY 10	**Hadoop for legacy applications**
DAY 11	**Hadoop ECO System introduction**
DAY 12	**Installing HBase**
DAY 13	**Random access using Java client APIS**
DAY 14	**Running Map Reduce jobs**
DAY 15	**Installing Pig**
DAY 16	**Pig command, Set operations, Sorting operations**
DAY 17	**Pig script**
DAY 18	**Installing Hive** • Installation , SQL-style query with Hive • Performing a join with Hive
DAY 19	**Installing Mahout** • Installation • Running k-means with Mahout • Visualizing k-means results • Sample program
DAY 20	**Analytics** • Simple analytics using MapReduce • Sample program for exercise.
DAY 21	**PROJECT** Workshop for Project
DAY 22	**Revision class**
DAY 23	**SPIRO CERTIFICATION Big Data Analytics EXAM**

Course Duration: ..... Fees: .....

Data Analysis with R Language:
This course is designed for all those who are keen to get into analytics and become future Data Scientists

What is R ?
With over 2 million users worldwide R is rapidly becoming the leading programming language in statistics and data science. Every year, the number of R users grows by 40%, and an increasing number of organizations are using it in their day-to-day activities.

In this introduction to R, you will master the basics of this beautiful open source language . With the knowledge gained in this course, you will be ready to undertake your first very own data analysis.

Students Will Learn:

R Language introduction and Installation,Reading and Getting Data into R, Viewing Named Objects, Types of Data Items, Structure of Data Items, Working with Objects, Descriptive statistics and Tabulation, Hypothesis Testing,Distribution of Data,Graphical Analysis

Course Description:

This hands-on R Programming course provides a practical oriented training

in R language.. Students are entraining to the real world scenario to develop End to End and user interactive application programming using R. The course emphasize on interactive sessions where students, led by the trainers having many years of practical experience as consultants in the industry will learn the topics by taking part in the sessions in a forum like discussions about the topic of the day rather than the trainer delivering a lecture to a bored audience as is the order of the day for most training classes. Classes are incremental which means each class takes off from where it was left from the previous day. Attending all classes is strongly advised.

Course Prerequisites:

Engineering students, Science students with Mathematics or statistics background with good analytical skills. The good news is that - as this is an applied course, the focus will be on real-world case studies rather than just the theory.

Follow-up Courses:

Advanced Business Analytics with R language

Day1	Introduction to R
	History of R ,
	Why R ? R advantages
	Installing, Running, and Interacting with R
	R-GUI
Day2	R-Basics
	objects
	naming convention functions
	Assignment
	Workspace
	functions
Day3	R- Objects
	Vectors
	Lists
	Arrays
	Tables
	Data frames
Day4	R commonly used operators
	Arithmetic
	Relational
	Logical
	Assignment
	Sequence
	Practice Your Programming Skill
Day5	Graphics in R
	Plot function
	Histogram in R
	Boxplot
	Customizing plots
	Text Drawing
Day6	Reading and Writing Data to and from R
	Keyboard input, importing data from Excel
	To set up a working directory
	Writing Data to a file
	Keyboard input, importing data from Excel
Day7	Data types in R
	scalars
	Vectors
	Matrices
	Dataframes
	lists
Day8	Descriptive Statistics
	Mean
	Standard Deviation
	Kurtosis
	Variance
Day9	Advanced Statistics
	R-Test
	Two-sample t-test
	Paired t-test
Day10	Regression
	Simple Linear Regression
	Multiple Regression
	Workshop for Project
Day11	PROJECT
	Workshop for Project
Day12	Revision class
Day13	SPIRO CERTIFICATION JAVA EXAM

Course Duration: ..... Fees: .....

Students will learn:

BASIC OF electrical and electronics, working of semiconductor devices, knowledge about various power electronics devices and converters such as switched mode power supply, dc to dc converters, new inverter topologies, recent trends in power electronics.

Course description:

The application of electronics to energy conversion and control, Topics covered include: modeling, analysis, and control techniques; design of power circuits including inverters, rectifiers, and DC-DC converters; analysis and design of magnetic components and filters; and characteristics of power semiconductor devices. Numerous application examples will be presented such as motion control systems, power supplies. The course is worth 6 engineering design points
It touches an introductory part of Power MOSFET and Power IGBT, and developing hardware models of power electronics converters and implementing pulse width modulation techniques by using PIC micro-controllers.

Training methodology:

Tech Innovates has emerged as a leader in the field of power electronics training. The training imparted during this program will be 50% theory & 50% practical with more stress on hands on knowledge. All the modules will be covered with lab sessions on major topics. You will do several lab experiments, mini projects and a major project.

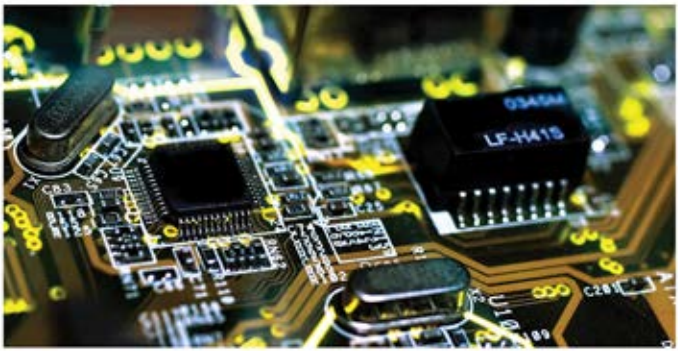
Course prerequisites:

Basic of computer, Basic programming in C. Knowledge and experience with power electronics concept is helpful.

DAY'S	CONTENTS
DAY01	**INTRODUCTION OF ELECTRICAL AND ELECTRONICS:** • An overview **electrical and electronics** • Definition, and basics of electricity • Basics elements –transformer, power supply units • history of **electrical and electronics** • Electrical units and definitions
DAY02	**POWER DEVICES** • POWER MOSFET (low power and high power) • IGBT • SCR • passive components and active components • voltage I control devices and current control devices
DAY03	**INTRODUCTION OF MATLAB** • Installing MATLAB software • Starting and quitting the MATLAB program • desktop tools and development environment • Creating script (.M FILES) and models (.MDL FILES)
DAY04	**PROGRAMMING FUNDAMENTALS** • data types and conversion • numeric types • cell arrays • structures
DAY05	**BASIC PROGRAM COMPONENTS** • arrings • logical and relational operations • bit-wise operations • date and time format • character and symbol details

DAY06	**MATLAB SIMULATION CLASSIFICATIONS** • M SCRIPT and SIMULINK • matrix and arrays • plotting • mathematic • modeling
DAY07	**BASICS INFORMATION** • M-script and C program • comparison between M scripting and C programming • writing program and function files
DAY08	**IMPLEMENTING CODE** • C program • MATLAB script • function files
DAY09	**ABOUT SIMULINK** • Basics of SIMULINK • SIMULINK tools • Model-based design
DAY10	**ABOUT SIMSCAP** • SIM electronics • SIM power system • Power lib
DAY11	**MATLAB BASED APPLICATIONS** • Programming • Modeling • Interfacing • Debugging

DA110	MATLAB GUIDE LINES AND STANDARDS • External interfaces • Introduction about an external interfaces • Application development
DA112	MATLAB CODE CONVERSATION • Deployment tools • Stand alone (.exe) • Model to c and c++ code
	POWER ELECTRONICS
DA114	POWER ELECTRONICS DEVICES • Solid state electronics • Asemiconductors history • Classification, IGBT & MOSFET, SCR ....ect • Studying of devices in MATLAB • Implementing and design
DA116	STUDY OF DEVICES • Transformer • Motors and other devices • Implementing and design of devices
DA116	STUDY OF BASICS POWER ELECTRONICS CIRCUITS AND ITS TYPES • Rectifier • Chopper • Inverter • Cycloconverter
DA117	STUDY OF HARD WARE • Micro controller • Driver IC • Regulators
DA118	DESIGN AND IMPLEMENTATION OF RECTIFIER IN SIMULINK • Half wave • Full wave • Bridge rectifier
DA119	HARDWARE IMPLEMENTATION OF RECTIFIERS • Components analysis • Designing circuits • Making hardware
DA120	DESIGN AND IMPLEMENTATION OF CHOPPER IN SIMULINK • Buck • Boost converter • Buck boost converter • Cuk converter • Sepic converter
DA121	HARDWARE IMPLEMENTATION OF CHOPPER • Components analysis • Designing circuits • Making hardware
DA122	DESIGN AND IMPLEMENTATION OF INVERTER IN SIMULINK • Voltage source • Current source • Z source • Multi level
DA123	HARDWARE IMPLEMENTATION OF INVERTER • Components analysis • Designing circuits • Making hardware
DA124	DESIGN AND IMPLEMENTATION OF CYCLOCONVERTER IN SIMULINK • Step up • Step down
DA125	HARDWARE IMPLEMENTATION OF CYCLOCONVERTER • Components analysis • Designing circuits • Making hardware
DA126	INTERFACING AND SIMULATING • Simulink model • Code conversion • Hardware interfacing



Course Duration: ..... Fees: .....

Students Will Learn:

BASIC OF electrical and electronics, working of power system, knowledge about various power system components and power IGBT based inverters and FACTS devices.

Course Description:

AC electric power transmission networks and addresses a range of challenges related to reactive power and voltage control as well as steady-state and transients stability. Students will learn in detail the principles of traditional reactive power compensation (shunt reactors and capacitors); series compensation and modern static reactive compensation like SVC, STATCOM and other Flexible AC Transmission Systems (FACTS) devices. The effects of each of these types of compensation on static and dynamic voltage control, reactive power requirement and steady-state and transient stability problems are covered from theoretical as well as practical aspects. Particular attention is given to the mathematical models and principles of operation of many types of compensation systems. Basic principles of operation and control of High-Voltage DC (HVDC) systems and their impact on steady-state and dynamics of power system will be covered as well.

Training Methodology:

Tech Innovates has emerged as a leader in the field of power system training. The training imparted during this program will be 50% theory & 50% practical with more stress on hands on knowledge. All the modules will be covered with lab sessions on major topics. You will do several lab experiments, mini projects and a major project.

Course Prerequisites:

Basic of computer, Basic programming in C. Knowledge and experience with power system concept is helpful.

DAYS	CONTENTS
DAY01	**INTRODUCTION OF ELECTRICAL AND ELECTRONICS:** • An overview **electrical and electronics** • Definition, and basics of electricity, • Basics elements -transformer, power supply units • history of **electrical and electronics**, • Electrical units and definitions
DAY02	**POWER DEVICES** • POWER MOSFET (low power and high power) • IGBT • SCR • passive components and active components • voltage control devices and current control devices
DAY03	**INTRODUCTION OF MATLAB** • Installing MATLAB software • Starting and quitting the MATLAB program • Desktop tools and development environment • Creating script (.M FILES) and models (.MDL FILES)
DAY04	**PROGRAMMING FUNDAMENTALS** • Data types and conversion • Numeric types • Cell arrays • Structures
DAY05	**BASIC PROGRAM COMPONENTS** • Strings • Logical and relational operations • Bit-wise operations • Date and time format • Character and symbol details

DAY06	**MATLAB SIMULATION CLASSIFICATIONS** • M script and simulink • Matrix and arrays • Plotting • Mathematic • Modeling
DAY07	**BASICS INFORMATION** • M-script and C program • Comparison between M-scripting and C programming • Writing program and function files
DAY08	**IMPLEMENTING CODE** • C program • MATLAB script • Function Files
DAY09	**ABOUT SIMULINK** • Basics of SIMULINK • SIMULINK tools • Model-based design
Day10	**ABOUT SIMSCAPE** • SIM electronics • SIM power system • Power lib
DAY11	**MATLAB BASED APPLICATIONS** • Programming • Modeling • Interfacing • Debugging
DAY12	**MATLAB GUIDE LINES AND STANDARDS** • External interfaces • Introduction about all external interfaces • Application development
DAY13	**MATLAB CODE CONVERSATION** • Deployment tools • Standalone (.exe) • Model to C and C++ code

DAY13	POWER ELECTRONICS DEVICES • Solid state electronics • Semiconductors history • Classification, IGBT & MOSFET, SCR…ect • Studying of devices in MATLAB • Implementing and design
DAY14	STUDY OF BASICS POWER ELECTRONICS CIRCUITS AND ITS TYPES • Rectifier • Chopper • Inverter • Cycloconverter
DAY15	STUDY OF DEVICES • Transformer • Cables • Insulators • Motors and generators • Implementing and design of devices
DAY16	STUDY OF HARD WARE • Micro controller • Driver IC • Regulators
DAY17	DESIGN AND IMPLEMENTATION OF CONVERTERS SIMULINK • Rectifier • Inverter • Cycloconverter • Chopper
DAY18	HARDWARE IMPLEMENTATION OF CONVERTERS • Components analysis • Designing circuits • Making hardware
DAY19	POWER SYSTEM STRUCTURE • Generation • Transmission • Distribution

DAY20	BASICS PROBLEM IN POWER SYSTEMS • Power factor • Loss • Devices faults • And other problems
DAY21	HARDWARE IMPLEMENTATION • Components analyses • Designing circuits • Making hardware
DAY22	DESIGN AND IMPLEMENTATION OF POWER SYSTEMS IN SIMULINK • Power Generation • Power compensation • Fault detection
DAY23	HARDWARE IMPLEMENTATION GENERATION AND COMPENSATION • Solar, wind… • STATCOM • UPFC • DVR • DPFC
DAY24	HARDWARE IMPLEMENTATION GENERATION AND COMPENSATION • Solar • STATCOM-TSTATCOM,DSTATCOM • UPFC
DAY25	INTERFACING AND SIMULATING • Simulink model • Code conversion • Hardware interfacing

Course Duration: .....Fees: .....

Students Will Learn:

- Basics of electronics
- C Programming
- 8051-Microcontroller
- 8051-with interfaces
- PIC controller
- PIC with Interfaces
- ARM Processor
- ARM with Interfaces

1. Interface & Basic Commands
2. Vectors, Matrices & Arithmetic's
3. Plotting & Visualization
4. Descriptive Statistics
5. Programming in Matlab

Course Description:

Realizing the growth of embedded systems in day-to-day life and the need for trained manpower in this promising area, SPIRO ITA has launched a Diploma in Embedded Systems Design (DESD) for Engineers in computers, electronics and IT. Embedded Systems is a unique field, where engineers need to have sound knowledge in hardware and software design. Keeping this aspect in view, SPIRO ITA has designed the diploma giving equal emphasis to hardware and software, enabling engineers to face challenges in the design and development of state of the art embedded systems.

Course Prerequisites:

Basic Knowledge of c Programming, Basic knowledge of electronics and microprocessor.

DAY 1	Module I: basic electronics
	Digital electronics: History, Need of electronics, Advantages, Building block of electronics, Difference b/w electronics and electrical . Electrical basics, Difference in functionality, Comparative study, Bend theory, Semiconductors: Basics of semiconductors (common-doctors-behavior of diode),Types of semiconductors and practical examples Bend theory (revised),Diode: Basics of diode, Types of diode, Principle of operation, V-I characteristics, Applications of diode,Function of a diode-an electronic switch, Rectifier, Clipper/damper
DAY 2	Module I: Basic Electronics
	Transistor: Basics of a transistor, Types of transistor, Configurations of transistor, Principle of operation, V-I characteristics Applications of transistor(I): Functions of a transistor, a switch and an amplifier, Inverter, Buffer, Basic amplifier, Audio amplifier-darlington pair, Transistor circuit analysis(I), Electrical law in electronics, amplifier analysis, Ac and dc analysis, Op-amp analysis, Ac and dc analysis Filters: other basic components (I): Basics of filters, Types of filters, Capacitors, Inductors, Resistors, Crystal oscillators, Voltage regulators, Transformers, Variable resistors
DAY 3	Module I: Basic Electronics
	Do regulated power supply(I): Development of a fixed dc power supply, Development of a variable dc power supply, Digital electronics(I): introduction, Number systems Conversions, Sop and pos, Simplification based on boolean algebra, K-maps, Logic gates
DAY 4	Module II: basics of "c"
	Levels of programming languages, Development of c, Software for c-turbo c, Data types, Variables and constants, Keywords and identifiers, Basic instructions- writing the first code in c, Type casting and conversion
DAY 5	Operators
	Operators(I): Operator classification, Arithmetic, Logical, Relational, Assignment, Increment/decrement, Bitwise
DAY 6	Control Flow
	Decision control instructions: Loops, Break-continue, Infinite loops, Nested loops
DAY 7	Function
	Function declaration, Function definition, Pass by value and reference, Basics of storage classes, Recursion
DAY 8	Arrays
	Declaration, Memory layout and accessing, Initialization, One dimensional array, Two dimensional array, Three dimensional array, Array with function, String, Two dimensional string, Three dimensional string, String with function, Library function for string
DAY 9	Pre-processor directives
	Definition, Type of macros, multi, Regular, Static, External The c preprocessor(II):File include, Macro definition, Difference between macro and function, Scope of macro, Type of macro
DAY 10	Shift Functions
	Structures and unions(I): Definition of structure, Introduction Of structure, Array with structure, Structure with pointer, Union, Difference b/w union and structure, Union within structure, Bit field, Typedef, Enum Pointers structures(II):Definition, Type allocation, Reference b/w static and dynamic allocation, Type of allocation Heady Definition, Type of file, Mode of opening file, Library functions
DAY 11	Data Structures
	Stack, Queues, Linked list
DAY 12	Basic Syntax
	Introduction, Components of a system, Types of supervisor, Process, Types of system, Control system basics
DAY 13	Basics of embedded systems
	Introduction, Types of embedded systems, Architectures, Difference, Types of hardware architecture, Advantages over other systems, Applications
DAY 14	Microcontroller 8051(I)
	Introduction,basic features of 8051, Micro controllers and embedded processors, Overview of 8051 family, Internals organization
DAY 15	8051 programming(I)
	8051 Von Neuron architecture, assembling & running an 8051 program, registers associated with 8051, addressing modes in 8051
DAY 16	Programming the 8051 microcontroller(I)
	Cross-compiling V, Programming the microcontroller, Software for embedded c/net, Burning the program into the microcontroller, Basic programming

DAY 17	[illegible]
	Data types & time delay in 8051 c, i/o programming in 8051 c, logic operation in 8051 c, data conversion programs in 8051 c, accessing code rom space in 8051 c, i/o programming, 8051 i/o programming, i/o bit manipulation programming, timers programming in c, programming 8051 timers, counter programming, programming timer 0 and 1 in 8051 c
DAY 18	Serial ports programming in c(ii)
	Basics of serial communication, 8051 connection to rs232, 8051 serial port programming in assembly, programming in second serial port, serial port programming in c
DAY 19	Interrupts programming in c(ii)
	8051 interrupts, programming timer interrupts, programming external hardware interrupts, programming serial communication interrupts, interrupt priority, interrupt programming
DAY 20	Interfacing motor control, relay, pwm, dc/stepper motors with 8051(i)
	Relays & opto isolators, dc motor interfacing and pwm, stepper motor interfacing, induction motor interfacing
DAY 21	Interfacing lcd, keyboard with 8051(i)
	Lcd interfacing, lcd, seven segment, keypad interfacing, buzzer, [illegible]
DAY 22	Interfacing adc and sensors with 8051(i)
	Parallel and serial adc. Sensor interfacing & signal conditioning • Ir sensor • Ldr sensor • Gas detector • Temperature sensor • Humidity sensor • Pir sensor
DAY 23	Interfacing wireless technologies with 8051(i)
	• Rf module(433mhz,2.4ghz) • Rf reader • Gsm modem • Zigbee
DAY 23	Interfacing wireless technologies with 8051(i)
	• Rf module(433mhz,2.4ghz) • Rf reader • Gsm modem • Zigbee
DAY 24	[illegible] Interfacing biometric technologies with 8051(i)
	• Fingerprint • Rfid reader
DAY 25	Hardware soldering class (ii)
	This class covers how to create and repair printed circuit assemblies by soldering and de soldering various types of electronic components on printed circuit boards (pcbs).
DAY 26, DAY 27	Project based on 8051
DAY 28, DAY 29	Revision class of 8051
DAY 30	Exam on 8051 (interfacing and basic c)
DAY 31	Pic microcontroller
	• Architecture difference between pic & 8051 • Features of pic 16f877a microcontroller • Hardware architecture of pic 16f877a **Programming the pic microcontroller(i)** Pic programming using ccs & mplab compiler, creating, editing, compiling and running a program using ccs & mplab compiler
DAY 32	Registers in pic 16f877a(i)
	Memory architecture of pic 16f877a. Data direction registers. Flag register **I/o programming** Port programming, i/o bit manipulation programming
DAY 33	Serial communication(i)
	Pic 16f877a connection to rs 232, serial port programming in c **Timers in pic 16f877a** Timers in pic16f877a, prescaler and post scaler, watch dog timer, delay using timers
DAY 34	Interfacing lcd, keyboard with pic(i)
	Lcd interfacing, lcd, seven segment, keypad interfacing, buzzer
DAY 35	Interfacing sensors with pic(i)
	Sensor interfacing & signal conditioning • Ir sensor • Ldr sensor • Gas detector • Temperature sensor • Humidity sensor
DAY 36	Interfacing wireless technologies with pic(i)
	• Rf module(433mhz,2.4ghz) • Rf reader • Gsm modem • Zigbee • Bluetooth • Gps **Encoders/decoders :** Introduction of various encoders & decoders [illegible] Interfacing circuits and time implementation using encoder/decoder programming Encoder wireless data transfer using [illegible] decoder

DAY 37	Protocols communication using pic(ii)
	Introduction to protocols, spi, i2c, can, rs232,rs422 Overview about protocols
DAY 38	Spi/i2c protocol communication using pic(ii) I2c protocol
	Programming for i2c protocol Real time application using i2c Advantages & disadvantages of i2c protocols.
DAY 39	Can protocol communication using pic (ii)
	Programming for can protocol Real time application using it Advantages & disadvantages of can protocols
DAY 40	Uart, rs 232,rs422 interfacing using pic (ii)
DAY 41,42,43	Project based on pic controller.
DAY 44	Revision on pic controller
DAY 45	Exam on pic controller
DAY 46	Introduction to arm processor
	Introduction to embedded system and arm processor Arm related companies and its opportunities Arm processor family Application of arm processor Compiler Emulation and debugging Difference between hex & c file. **Programming the arm processor** Arm programming using keil, creating, editing, compiling and running a program using keil
DAY 47	Module iii : Arm processor
	Introduction about **LPC2148** arm processor • Lpc2148 arm 7 microcontroller • Features of lpc2148 • Block diagram of lpc2148 • Pin diagram of lpc2148 • Architectural overview • On-chip flash program memory • On-chip static ram
DAY 48	Module iii: Arm processor
	Introduction about **lpc2129** arm processor • Lpc2129 arm 7 microcontroller • Features of lpc2129 • Block diagram of lpc2129 • Pin diagram of lpc2129 • Architectural overview • On-chip flash program memory • On-chip static ram
DAY 49	Module iii: Arm processor
	System control (ii) • Crystal oscillator • Pll • Reset and wake-up timer • Brownout detector • Code security • External interrupt input • Memory mapping control • Power control, vpb
DAY 50	Module iii: Arm processor
	I/o programming(i) Port programming, i/o bit manipulation programming **Lcd interfacing** Lcd interfacing, keyboard interfacing
DAY 51	Module iii: Arm processor
	Timers in arm(i) Timers in arm, prescaler and post scaler, watch dog timer, delay using timers **Serial communication** Arm connection to rs 232, serial ports in arm, serial port programming in c
DAY 52	Module iii: Arm processor
	Interfacing motor control, relay, pwm, dc/stepper motors with arm lpc 2129(i) Relays and opto isolators. Dc motor interfacing and pwm Stepper motor interfacing Induction motor interfacing
DAY 53	Module iii: Arm processor
	Interfacing adc and sensors arm lpc 2129(i) Parallel and serial adc. Sensor interfacing and signal conditioning • Ir sensor • Ldr sensor • Vibration sensor • Temperature sensor • Humidity sensor • Heart beat sensor

DAY 54	Module VI: Arm processor
	Interfacing wireless technologies with arm lpc2129(1): • Rf module(433mhz,2.4ghz) • Rf reader • Gsm modem • Zigbee • Blue tooth • Gps
DAY 55	Module VI: Arm processor
	I2c, spi, communication with arm lpc 2129(2): I2c – bus serial i/o controller Spi- serial i/o controller
DAY 56	Module VI: Arm processor
	Rtc,can based communication using arm lpc 2129(3): Programming for can protocol. Can-can-communication using arm lpc2129 Real time application using rtc Advantages & disadvantages of can protocols
Day 57	**Module vi:Arm processor**
Day 58	**Module vi:Arm processor**
Day 59	**Module vi:Arm processor**
Day 60	**Final day**

Course Duration: ..... Fees: .....

Students Will Learn:

BASIC OF Digital electronics, FSM, ASIC design flow, FPGA design flow, Front End Design, Back end design, Verilog & System Verilog, Verilog test bench creation, synthesize, bit stream generation, floor planning, RTL schematic view, FPGA kit dumping, CMOS technology, we will see the basic nano technology.

Course Description

The VLSI Front End Design course will give absolute nature of a VLSI system level design with RTL (Register Transfer Level) constructs within it. Module in the course are targeted towards making the learner a fore comer in the fresher's population seeking new beginning or for a professional to exploit new ideas. Laboratory sessions extending beyond Verilog HDL and VHDL will make yourself different in competition. The Front End course concentrates on logical design part. It touches an introductory part of CMOS technology, and more support to understand logical design of combinational circuit, sequential circuits and FSM. Major part of the course content is availed in laboratory sessions with the learning of Verilog HDL and VHDL programming. Synthesis of RTL design modules is mentored to implement it in FPGA & ASIC. Mini-projects and Projects are added to the laboratory work.

Training methodology:

Tech Innovates has emerged as a leader in the field of VLSI training. The training imparted during this program will be 50% theory & 50% practical with more stress on hands on knowledge. All the modules will be covered with lab sessions on major topics. You will do several lab experiments, mini projects and a major project.

Course prerequisites:

Basic of computer, Basic programming in C. Knowledge and experience with digital electronics concept is helpful.

VLSI

VLSI

Days	Contents
Day 01	**INTRODUCTION TO VLSI TECHNOLOGY** • Digital design • Analog design • mixed signal design
Day 02	**DIGITAL ELECTRONICS PART-I** • Boolean postulates • Simplification techniques • Basic logic gates • Number systems
Day 03	**DIGITAL ELECTRONICS PART-II** **Combinational circuit and sequential circuit** • Normal logic gates • D-flip flop, SR flip flop • JK flip flop • T flip flop • D-latch • SR latch • JK latch • T latch
Day 04	**DIGITAL ELECTRONICS PART-III** **Shift register, memory and storage devices** • Parallel in parallel out • Serial in serial out • Parallel in serial out • Serial in parallel out
Day 05	**FINITE STATE MACHINES (FSM)** **MOORE MACHINE AND MEALY MACHINE** • State minimization • Implication table • Trail and error • Miscellaneous machines
Day 06	**Design flow** **A SIC DESIGN AND FPGA DESIGN** • RTL design methodologies • Technology schematic • Floor planning • Implementation design
Day 07	**BACK END DESIGN** **TANNER EDA TOOL** • Schematic-edit • T-spice-edit • Layout- edit • Waveform-edit
Day 08	**FRONT END DESIGN** **HARDWARE DESCRIPTION LANGUAGE AND TYPES OF HDL** • VHDL • Verilog
Day 10	**VHDL** **TYPES OF MODELLINGS** • Switch level modeling • Gate level modeling • Dataflow modeling • Behavioral modeling • Structural modeling
Day 11	**VERILOG HDL PART-I** • Introduction of VERILOG HDL • VERILOG HDL language • VERILOG language basic and constructs • Abstraction level. **DATA TYPE:** • Type concept • Nets and register • Non hardware equivalent • Arrays
Day 12	**VERILOG HDL PART-II** **VERILOG OPERATORS:** • Arithmetic operators • Logical operators • Relational operators • Equality operators • Bitwise operators • Reduction operators • Shift operators • Concatenation operator • Replication operator • Conditional operator
Day 13	**HDL VERILOG ASSIGNMENT** • Type of assignment • Continuous assignment • Blocking and non-blocking assignment • Execution branching • Task and function.
Day 14	**MODELSIM** • Design • Compiling • Simulating
Day 15	**XILINX** • Architectural resource in an FPGA • Programmable interconnects • power distribution and configuration • CLBS inputs and outputs • multiplier and DCM blocks
Day 16	**TEST BENCH CODING** Verilog test bench coding
Day 17	**FPGA KIT DUMPING** • General structure and classification • CPLD vs FPGA • Creating bit file from verilog file
Day 18	**EXAMPLE PROGRAM** • Logic gates using verilog • Multiplier example • Mini project example
Day 19	**SYNTHESIZE** • RTL • Synthesizing • Implementation design • Area calculation • Delay calculation
Day 20	**POWER CALCULATION** VCD file creation and power tool
Day 21	**PROJECT: WORKSHOP FOR PROJECT** • Project specification analysis • Understanding the architecture • Module level implementation and verification
Day 22	**REVISION CLASS**
Day 23	**REVISION CLASS**
Day 24	**SPIRO CERTIFICATION VLSI EXAM**

Course Duration: ..... Fees: .....

Matlab: Fundamentals & Programming:

A comprehensive coverage of Matlab right from scratch up to programming and scripting functions. The course also touches upon advanced topics like data analysis, data import/export, structures, curve-fitting, regression, vectorization, debugging, etc. The course discusses guidelines for optimal and efficient programming in Matlab. This course is a must for those intending to start using Matlab for algorithm building in industry, academia or research. Request us a peek into the course

Content

1. Interface & Basic Commands
2. Vectors, Matrices & Arithmetic's
3. Plotting & Visualization
4. Descriptive Statistics
5. Programming in Matlab

Digital Signal Processing using Matlab:

1. Computing Transforms - numerical & symbolic
2. DFT using FFT
3. Convolutions
4. Filter Design
5. Sampling and Resampling

TRAINING METHODOLOGY

Tech Innovates has emerged as a leader in the field of MATLAB training. The training imparted during this program will be 50% theory & 50% practical with more stress on hands on knowledge. All the modules will be covered with lab sessions on major topics. You will do .several lab experiments, mini projects and a major project

DAYS	CONTENTS
DAY01	**ORIGIN OF ELECTRONICS:** • History • Need of electronics • Advantages • Building block of electronics **DIFFERENCE B/W ELECTRONICS AND ELECTRICALS:** • Electrical basics • Difference in functionality • Comparative study • Band theory **SEMICONDUCTORS:** • Basics of diode • Types of diode • Principle of operation • V-I characteristics • APPLICATIONS OF DIODES:) • Function of a diodes-an electronic switch • Rectifier • Clipper/clamper
DAY02	**TRANSISTOR** • Basics of a transistor • Types of transistor • Configurations of transistor • Principle of operation • V-I characteristics **APPLICATIONS OF TRANSISTORS):** • Functions of a transistor-a switch and an amplifier • Inverter • Buffer • Basic amplifier • Audio amplifier-darlington pair **TRANSISTOR CIRCUIT ANALYSIS):** • Electrical Law in Electronics • CE Amplifier Analysis • AC AND DC Analysis • OPAMP Analysis
DAY03	**DIGITAL ELECTRONICS):** • Introduction • Number systems • Conversions • Gates and pos • K-map • Simplification based on boolean algebra • Logic gates
DAY04	**BASICS OF C** • Levels of programming languages • Development of c • Data types • Software for c-turbo c • Variables and constants • Keywords and identifiers • Basic instructions-writing the first code in c • Type casting and conversion
DAY05	**OPERATORS):** • Operator classification • Arithmetic • Logical • Relational • Assignment • Increment/decrement • Bitwise

DAY07	**FUNCTIONS():** • Function Declaration • Function definition • Pass by value and reference • Basics of storage classes • Recursion
DAY08	**ARRAYS():** • Declaration • Memory layout and accessing • Initialization • Strings
DAY09	**STORAGE CLASSES():** • Definition • Type of classes • Auto • Register • Static • External
Day10	**THE C PREPROCESSOR():** • File include • Macro definition • Difference between macro and function • Scope of macro • Type of macro
DAY11	**DATA STRUCTURES():** • Stack • Queues • Linked list
DAY12	**STRUCTURE AND UNIONS():** • Definition of structure • Initialization of structure • Array with structure • Structure with pointer • Union • Difference b/w union and structure • Union within structure • Bit field • Typedef • Enum
DAY13	**MEMORY ALLOCATIONS():** • Definition • Type allocation • Difference b/w static and dynamic allocation • Type of allocation
DAY14	**FILES():** • Definition • Type of file • Mode of opening file • Library functions
DAY15	**INTRODUCTION** **TARTING AND QUITTING THE MATLAB PROGRAM** • About matlab

DAY16	INTRODUCTION: STARTING AND QUITTING THE MATLAB PROGRAM • About matlab • Starting a matlab program • Ways to quit the matlab program DESKTOP TOOLS AND DEVELOPMENT ENVIRONMENT • Command window and history • Getting help • Workspace • Search path • File operations GETTING STARTED: • Creating variables • Controlling the appearance of floating point number
DAY17	VECTOR AND MATRICX : • Basic information • Basic commands, creating and concatenating the matrices • Shift and sort functions OPERATORS • Arithmetic Operators And Examples ELEMENTARY MATRICES AND ARRAYS • Commands And Examples ARRAY OPERATIONS AND MANIPULATION • Commands And Examples SPECIALIZED MATRICES • Details and Examples
DAY17	LINEAR ALGEBRA • The colon operator • Matrix analysis • Eigen values and Singular values • Matrix algorithms and exponentials ELEMENTARY PATH • Trigonometric functions • Complex, rounding and remainder functions • Polynomials MATHEMATICS:- • Interpolation • Integration • Fourier transform
DAY18	GRAPHICS OVERVIEW OF PLOTTING • Figure Toolbar • Plotting tools, working with plotting tools • Plot edit mode, using functions to edit graphs • Data Exploration tools ANNOTATING PLOTS AND GRAPH • Adding titles, lines • Axis lables, text and arrows to graphs BASIC PLOTTING COMMAND • Creating line plots, • Specifying line style • Color and size of lines • Adding plots to an existing graph • Plotting with two y-axis
DAY19	SPECIALIZED PLOTS • Baland Areagraphs • Pie charts,histograms • Contour plots,stem and line plots • Direction and velocity vector graphs PRINTING AND EXPORTING • Overview of printing • Printing from the file menu • Exporting the figure to a graphics file • Using the print command AXIS AND FIGURE PROPERTIES • Figure color maps • Labeling and appearance properties • Using multiple x and y axis
DAY20	3D VISUALIZATION SURFACE AND MESH PLOT • Surface and mesh creation • Meshgrid operation • Color operations VIEW CONTROL • Region of interest • Camera view point • Object manipulation VOLUME VISUALIZATION EXTERNAL INTERFACES • Introduction About All External Interfaces

DAY21	DATA ANALYSIS : INTRODUCTION • Importing and exporting data • Loading the data missing data SUMMARIZING DATA • Smoothing and filtering the data • Descriptive statistics • Regression analysis VISUALIZING DATA • Overview • 2-d scatter plots • 3-d scatter plots • Scatter plot arrays • Exploring data in graphs
DAY22	PROGRAMMING FUNDAMENTALS: DATA TYPES AND CONVERSION • Numeric types • Cell arrays • Structures • Data type identification • Data type conversions BASIC PROGRAM COMPONENTS • Strings • Logical and relational operations • Bit- wise operations • Date and time format • Character and symbol details FILES AND SCRIPTS • Overview • Scripts • Create functions • Create function handles
DAY23	FLOW CONTROL • Conditional control • If, else, switch, loop control • For, while, continue, break, error control • Try, catch, program terminations
DAY24	CREATING GRAPHICAL USER INTERFACE WHAT IS GUI? CREATING A SIMPLE GUI WITH GUIDE • Starting guide • Laying out a simple GUI • Programming a simple guide GUI • Examples of guide GUI CREATING A SIMPLE GUI PROGRAMMATICALLY • Laying out a GUI programming a GUI • Examples of GUI
DAY25	INTRODUCTION : COMMUNICATION • Basic Definitions And Terms WIRELESS COMMUNICATION • Block Diagram SOURCE • Some Basic • Commands and examples MODULATION • Basic Definitions And Examples
DAY26	CHANNELS MIMO CHANNEL : MULTIPATH PROPAGATION FADING • Flat fading • Frequency selective fading • Fast fading • Slow Fading FADING CHANNELS DIGITAL CHANNEL MODELS
DAY27	RECEIVING- MULTIPLEXING • Time division multiplexing • Frequency division multiplexing • Code division multiplexing • Space division multiplexing NOISE • Thermal noise • Shot noise • Flicker noise • Colored noise SIGNAL TO NOISE RATIO • Concept of SNR • Effect of bandwidth on SNR BIT ERROR RATE • BER definition • BER and EB/N0 • Factors affecting BER

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COURSE PREREQUISITES:

Basic of computer, Basic programming in C. Knowledge and experience with digital electronics concept is helpful.

Implementing Genetic Algorithms in Matlab :

1. Philosophy of GAs
2. Genetic operations
3. GAs for 2D optimization problems
4. GAs for 3D optimization problems

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DAY 06	**CONTROL FLOW(L):** • Decision control instructions • Loops • Break-continue • Infinite loops • Nested loops
DAY 07	**FUNCTIONS(L):** • Function declaration • Function definition • Pass by value and reference • Basics of storage classes • Recursion
DAY 08	**ARRAY(L):** • Declaration • Memory layout and accessing • Initialization • String • One dimensional array • Two dimensional array • Three dimensional array • Array with function • Two dimensional string • Three dimensional string • String with function • Library function for string
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DAY 23	**FLOW CONTROL** • Conditional control • If, else, switch, loop control • For, while, continue, break, error control • Try, catch, program termination **ERROR HANDLING** • Display message about function • Warnings and warning control **EVALUATION AND MEMORY USAGE** • Timer operations • Declare global variables • Resolving out of memory error
DAY 24	**CREATING GRAPHICAL USER INTERFACE** **WHAT IS GUI?** **CREATING A SIMPLE GUI WITH GUIDE** • Starting guide • Laying out a simple gui • Programming a simple guide gui • Examples of guide gui **CREATING A SIMPLE GUI PROGRAMMATICALLY** • Laying out a gui programming a gui • Examples of gui
DAY 25	**INTRODUCTION** • Read and write the images • Image display and exploration • Image types and conversions • Image arithmetic operations
DAY 26	**SPATIAL TRANSFORMATION,IMAGE ANALYSIS AND IMAGE ENHANCEMENT** • Rotate • Resize and crop the image • Pixel values and statistics • Enhancing pixel value using histogram and filter
DAY 27	**MORPHOLOGICAL OPERATIONS AND EDGE DETECTION** • Intensity and binary images • Edge detection types
DAY 28	**LINEAR FILTERING,IMAGE TRANSFORM AND COLORMAP FUNCTIONS** • Create 2-d filter and design • Image transform • Roi-based processing • Pad array
DAY 29	**IMAGE ACQUISITION TOOLBOX** • Introduction • Acquiring the image data **COMPUTER VISION SYSTEM TOOLBOX** • Introduction • Importing and exporting images and video
DAY 30	**INTERFACING IMAGE PROCESSING TO EMBEDDED** • Introduction • Acquiring the image data • Transmitting • Receiving • Controlling according to our destination















Inauguration of Second Floor Premises
Shri.S.Mohanrajulu
BJP Organizational General Secreatary(TN & Pondy)

Lighting of Kuthuvilakku
Mr.M.N.Raja
Managing Director, Sharaness Group & Trustee,

Inauguration of our Digital Notice Board
Shri.S.Mohanrajulu
BJP Organizational General Secreatary(TN & Pondy)

Honoured by Sampath Kumar S.M
Mr.M.N.Raja
Managing Director, Sharaness Group & Trustee

Inauguration of Spiro HR Management Consultants
Mr.E.R.Eswaran
Managing Director, Maxis Constructions and Stan Fab Apparels

Honoured by Udhaiya Kumar S.M
Dr.Mini Rao Ph.D., M.Phil., M.A
Psychology Consultant

Honoured by Udhaiya Kumar S.M
Dr.Manoj Beno
Medical Director, Billroth Hospital

Inauguration of Spiro Centre of Excellence
Mr.Sujith Kumar
Head Human Resources, Infosys

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Project Type : ☐ Mini ☐ Major
Preferred Training Duration : ☐ 20 Days ☐ 35 Days
No. of Students in Batch : ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
Preferred Technologies :
☐ JAVA ☐ .Net ☐ VLSI ☐ EMBEDDED
☐ MATLAB ☐ Others : .....
Email Id 2 : .....

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☐ Image Processing ☐ Automation ☐ Mobile Computing ☐ Software Engg ☐ Robotics
☐ Communication ☐ Power Electronics ☐ Electrical ☐ Wireless (GSM\GPS\ZIGBEE\ BLUETOOTH\RF)
☐ Others : .....

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Foundation

SPIRO Foundation is a Corporate Social Responsibility Trust, supported by SPIRO Group companies.
Phone : 044 - 42 64 12 13 / 42 64 13 12
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Website : www.spirofoundation.org

SPIRO

www.spiroprojects.com
www.stupros.com

For ECE, EEE, E&I, E&C & Mechanical, Civil, Bio-Medical

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