# RND Project
# Industrial Training/Workshop

## GSSG Tech Solutions LLP
**ISO 9001:2015**

**TEKNIK**™

**GSSG Tech Solutions LLP**

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## About Us

GSSG Tech Solutions LLP can be summarized as a center for Research and Development of Industrial custom products. Our traditional business model is aimed to develop innovative products in the field of Electronics & Electrical based Home/Industrial Automation, Energy saving devices, LED products, Embedded Projects. The in-house R&D unit along with skilled Engineers and Technicians guide the way through towards new ideas and product possibilities.

TEKNIK is the brand of GSSG Tech Solutions LLP which has a clear motive of "Inviting Innovations". We are a client based working team who are continuously into technological improvement around the globe. Be it Web Development or Server Based Solutions or Embedded Solutions for Industries, TEKNIK is the primary key to your problem statements.

TEKNIK loves young Entrepreneurs and hobbyists, hence we like to encourage youths to develop themselves technically through our Industrial Classrooms. We have indulged ourselves in professional industrial training sessions aimed for Engineering/Diploma Students on Industrial Microcontrollers, 3D Modeling & Printing, Web Development, Server Solutions, VLSI, PLC and automation, Raspberry Pi, IOT, Image Processing, PCB design & Fabrication, Circuit Simulation, Programming Languages like Python, Java, Android and much more.

## TEKNIK Activities for Students

- TEKNIK is a unit of GSSG Tech Solutions LLP which deals with Student Training and Workshops in and around West Bengal, Bangalore, Bhubaneswar, Jharkhand.
- TEKNIK has been professional towards its students and train them with utmost care and by student friendly trainers.
- We allow students to know their subjects and learn the technical know-how in the most Industrial way. Easy to understand study materials on respective topics are provided to students.
- Students, once registered in the TEKNIK network, receives technical help from our experts all round the year.
- Till now TEKNIK has worked with many reputed colleges around the corner and has received positive responses and encouragement from students and faculties.
- TEKNIK is now keen to extend the course structures and reach out to Engineering institutes in the neighbouring states.

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# COMPANY STRATEGY

### Vision

- To provide quality services that exceeds the expectations of our esteemed customers.
- To educate students and to develop sound knowledge of the fundamentals which will help to carry out the design process from problem definition to solution.
- To prepare students for a variety of challenging careers in industry e.g. production, service , R&D, engineering etc..

### Mission

- To build long term relationship with our clients and to provide exceptional customer services by pursuing business through innovation and advanced technology.
- To have highly qualified faculty.
- To support application oriented research and encourage entrepreneurship.

### Service We Offer

- Embedded projects and Web–Integrated Embedded Applications (Client Based).
- Energy Saving Automation.
- Android and Web Applications.
- 3D Printing.
- PCB Fabrication.
- Seminars/Workshops/Training for school and colleges in different topics.

### Core Values

- We believe in treating our customers with respect and faith.
- We grow through creativity, invention and innovation.

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# Training Details

## course content

1. AVR/Arduino- Home automation.
2. Arduino-IOT.
3. Arduino Mobile System Using GSM-900.
4. Line Follower & Obstacle Detection.
5. Gesture Control Robotics.
6. Web Development.
7. Ethical Hacking.
8. Android.

9. Core Java.
10. Python Programming Language.
11. Raspberry Pi, Python & IOT.
12. AVR Microcontrollers.
13. IC Engine Designing.
14. PIC Microcontroller (Industrial Graded).
15. ARM 32 Bit Cortex-M4 Microcontrollers.
16. Nuvoton Microcontroller (Industrial Graded).
17. Industrial Automation Using PLC & SCADA.
18. VLSI Using EDA Tools.
19. 3D Design & Printing.
20. PCB Design & Fabrication.

## Training/Workshop On:

### A. AVR/ARDUINO (2 Days/12 hours)

**Theory:**

1. Brief ideas on microcontroller/processor and their application.
2. AVR/ARDUINO Basics.
3. Programming with AVR/ARDUINO.
4. Types of Input/Output devices and their interfacing with AVR/ARDUINO.

**Practical:**

1. LED, LCD, Switch, Potentiometer.
2. Relay (AC load drive).
3. Motor driving using motor driver.
4. IR/LDR (concept of line follower).
5. Bluetooth communication.

## Training/Workshop On:

### B. AVR/ARDUINO (3 Days/18 hours)

**Theory:**

1. Brief ideas on microcontroller/processor and their application.
2. AVR/ARDUINO Basics.
3. Programming with AVR/ARDUINO.
4. Types of Input/Output devices and their interfacing with AVR/ARDUINO.

**Practical:**

1. LED, LCD, Switch, Potentiometer.
2. Relay.
3. Motor driving using motor driver.
4. IR/LDR (concept of line follower).
5. Rf Communication.
6. Matrix keypad working and interfacing with mcu.
7. Bluetooth communication.
8. Tsop, TV remote interfacing and home
9. Serial communication with other controllers.

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Training/Workshop On:

## C.  Line follower and Obstacle avoider (2 Days/12 hours)

Theory:

1.  Brief ideas on microcontroller/processor and their application.
2.  AVR/ARDUINO Basics.
3.  Programming with AVR/ARDUINO.
4.  Types of Input/Output devices and their interfacing with AVR/ARDUINO.

Hands On:

1.  LED, LCD, Switch, Potentiometer.
2.  Motor driving using motor driver.
3.  IR/LDR.
4.  Robot making.
5.  Concept of line follower/obstacle avoider.

Training/Workshop On:

## D.  PCB designing and Fabrication (2 Days/12 hours)

1. Introduction to PCB Manufacturing Processes.
2. Basic Circuitry concepts and types of components.
3. Familiarization with Eagle (Professional)
4. Prototyping the board using toner transfer process.
5. Hands on Soldering session.

Training/Workshop On:

## E.  Home Automation (2 Days/12 hours)

Theory:

1.  Brief ideas on microcontroller/processor and their application.
2.  AVR/ARDUINO Basics.
3.  Programming with AVR/ARDUINO.
4.  Types of Input/Output devices and their interfacing with AVR/ARDUINO.

Hands On:

1.  LED, LCD, Switch, Potentiometer.
2.  Relay.
3.  Motor driving using motor driver.
4.  IR/LDR.
5.  Tsop and Remote.
6.  Temperature Sensor.
7.  PIR Sensor.
8.  Anti theft System.
9.  Automatic Home Automation.
10. Bluetooth communication .

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<u>Training/Workshop On:</u>

**F.  Raspberry Pi & IOT (3 Days/18 hours)**

1.  Installing and working with Linux environ.
2.  Python Programming.
3.  I/O Devices interfacing with Pi.
4.  Internet of things (IOT) concept and hands on project.

**Training/Workshop On:**
**G. 3D Printing Technology (1/2Days 6/12 Hours)**

1.  Part design.
2.  Basic surface design.
3.  Drafting.
4.  Assembly design.
5.  Live demo usng 3D printer

**Training/Workshop On:**
**H. EDA Tools for Advanced VLSI (2 Days 12 Hours)**

<u>Module 1: SPICE</u>.
Introduction to SPICE.
Analog & Digital Circuit design with SPICE.
Simulation of Circuit using Spice.
Hands-On Session with SPICE EDA tool.

<u>Module 2: Layout</u>.
Introduction to Layout design.
Layout design techniques.
Layout design rules.
Hands on layout design session.

<u>Module 3: VHDL With FPGA</u>.
Introduction to VHDL.
Combinational circuit design using VHDL.
Sequential Circuit design using VHDL.
Introduction to FPGA.
Hands on session on VHDL and FPGA.

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# TEKNIK INDUSTRIAL CLASSROOMS

## Summer/Winter Training Courses

| Sl.No | Course Name | Eligibility | Duration | Fes per Student |
|-------|-------------|-------------|----------|-----------------|
| 01 | Python Programming Language | Diploma, B.tech, MCA, BCA (1st yr to Final Yr) all Stream. | 30 hrs | Rs. 3000/- |
| 02 | Python with Raspberry Pi & IOT | Diploma, B.tech, MCA, BCA (2nd yr to Final Yr) CSE, ECE, EE, AEIE, ME. | 30 hrs | Rs. 3000/- (without Kit) Rs. 4000/-(with Kit) |
| 03 | Core Java | Diploma, B.tech, MCA, BCA (1st yr to Final Yr) CSE, IT, ECE, ME, EE. | 30 hrs | Rs. 3000/- |
| 04 | J2EE (Advanced JAVA) | Diploma, B.tech, MCA, BCA (2nd yr to Final Yr) CSE, IT, ECE, ME, EE. | 30 hrs | Rs. 3800/- |
| 05 | Android Application Development | Diploma, B.tech, MCA, BCA (1st yr to Final Yr) CSE, IT, ECE, ME, EE. | 30 hrs | Rs. 3800/- |
| 06 | Web Development ( PHP & MySQL) | Diploma, B.tech, MCA, BCA (1st yr to Final Yr) ) CSE, IT, ECE, ME, EE. | 30 hrs | Rs. 3800/- |
| 07 | Ethical Hacking & Cyber Security | Diploma, B.tech, MCA, BCA (1st yr to Final Yr) CSE, IT, ECE, ME, EE. | 30 hrs | Rs. 3800/- |
| 08 | Embedded System & Robotics | Diploma, B.tech, MCA, BCA (1st yr to Final Yr) all stream. | 30 hrs | Rs. 2800/- (without Kit) Rs. 3500/-(with Kit) |
| 09 | Arduino & IOT | Diploma, B.tech, MCA, BCA (1st yr to Final Yr) all stream. | 30 hrs | Rs. 2800/- (without Kit) Rs. 3500/-(with Kit) |
| 10 | Arduino Mobile System Using GSM-900. | Diploma, B.tech, MCA, BCA (1st yr to Final Yr) all stream. | 30 hrs | Rs. 2500/- (without Kit) Rs. 3000/-(with Kit) |
| 11 | AVR Microcontrollers & Automation | Diploma, B.tech, MCA, BCA (1st yr to Final Yr) all stream. | 30 hrs | Rs. 2800/- (without Kit) Rs. 3200/-(with Kit) |
| 12 | Arduino Microcontrollers & Automation | Diploma, B.tech, MCA, BCA (1st yr to Final Yr) all stream. | 30 hrs | Rs. 2800/- (without Kit) Rs. 3200/-(with Kit) |
| 13 | PIC Microcontroller (Industrial Graded) | Diploma, B.tech, MCA. (1st yr to Final Yr) ECE, EE, AEIE, ME. | 30 hrs | Rs. 3000/- (without Kit) Rs. 4600/- (with kit) |
| 14 | ARM 32 Bit Cortex-M4 Microcontrollers | Diploma, B.tech, MCA. (2nd yr to Final Yr) ECE, EE, AEIE, ME. | 40 hrs | Rs. 3500/- (without Kit) Rs. 5200/- (with kit) |
| 15 | Nuvoton Microcontroller (Industrial Graded) | Diploma, B.tech, MCA. (2nd yr to Final Yr) ECE, EE, AEIE, ME. | 30 hrs | Rs. 3000/- (without Kit) Rs. 4700/- (with kit) |
| 16 | Industrial Automation Using PLC & SCADA | Diploma, B.tech. (1st yr to Final Yr) ECE, EE, AEIE, ME. | 40 hrs | Rs. 4500/- |
| 17 | VLSI Using EDA Tools | Diploma, B.tech, MCA, BCA. (2nd yr to Final Yr) ECE, EE, AEIE, ME, CSE. | 30 hrs | Rs. 3000/- |
| 18 | 3D Design & Printing (Solidworks) | Diploma, B.tech. (1st yr to Final Yr) ME, CE, EE, ECE, AEIE. | 40 hrs | Rs. 3800/- |
| 19 | PCB Design & Fabrication (Eagle) | Diploma, B.tech. (1st yr to Final Yr) ECE, EE, AEIE, ME, CSE. | 30 hrs | Rs. 3000/- |
| 20 | IC Engine Designing | Diploma, B.tech. (2nd yr to Final Yr) ME, AUE,SE | 30 hrs | Rs. 3000/- |

* Price including all taxes.

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# TEKNIK INDUSTRIAL CLASSROOMS

## Workshop Details

| Sl.No | Course Name | Duration | Student Strength | Fees Per Students |
|-------|-------------|----------|------------------|-------------------|
| 01 | AVR/ARDUINO – Home Automation | 2 Days (12 Hours) | <=40 | 1000.00 |
|    |                               |                   | >40  | 900.00  |
| 02 | AVR/ARDUINO – Home Automation | 3 Days (18 Hours) | <=40 | 1300.00 |
|    |                               |                   | >40  | 1200.00 |
| 03 | Line Follower & Obstacle Detection | 2 Days (12 Hours) | <=40 | 1000.00 |
|    |                               |                   | >40  | 900.00  |
| 04 | Gesture Control Robotics | 2 Days (12 Hours) | <=40 | 1200.00 |
|    |                          |                   | >40  | 1100.00 |
| 05 | Arduino Mobile System Using GSM-900 | 2 Days (12 Hours) | <=40 | 1200.00 |
|    |                          |                   | >40  | 1100.00 |
| 06 | Raspberry Pi -IOT | 3 Days (18 Hours) | <=40 | 1900.00 |
|    |                   |                   | >40  | 1800.00 |
| 07 | Arduino -IOT | 2 Days (12 Hours) | <=40 | 1000.00 |
|    |              |                   | >40  | 900.00  |
| 08 | 3D Printing Technology | 1 Day  |  | 20000.00 |
|    |                        | 2 Days |  | 30000.00 |
| 09 | PCB Designing & Fabrication | 1 Day  |  | 20000.00 |
|    |                             | 2 Days |  | 30000.00 |
| 10 | Ethical Hacking | 1 Day  | >40 | 500.00 |
|    |                 | 2 Days | >40 | 800.00 |
| 11 | ARM 32 Bit Cortex-M4 Microcontrollers | 3 Days (18 Hours) | <=40 | 1300.00 |
|    |                                       |                   | >40  | 1200.00 |
| 12 | IC Engine Designing | 2 Days (12 Hours) | <=40 | 800.00 |
|    |                     |                   | >40  | 700.00 |
| 13 | VLSI Using EDA Tools | 2 Days (12 Hours) | <=40 | 900.00 |
|    |                      |                   | >40  | 800.00 |

## TEKNIK... Where Technology Meets Innovators

# Terms and Condition

- Course fees are dynamic and will vary upon number of students registering for the event.

- College authorities should collect the fees before-hand with the maximum mentioned rate (see chart above). In case the student strength increases and points to the next slab, the balance amount shall be returned to the students.

- The time duration (in hours) of the above mentioned courses are 6 hours per day from 10:00 AM to 4.30 PM with 30 mins break in between.

The fee structures do not include Take Away Kits. However, individuals or students as a group can buy our easy to learn Self Learning Kits from us at the following rates:

- **AVR/ARDUINO Self Learning Kit: Rs. 3000/- only, which includes** :

  AVR/Arduino with cable, Led, LCD, Switch, Matrix Keypad, Motor Driver, Relay, IR, Temperature Sensor, TSOP & Remote, Bluetooth, RF Module, BreadBoard, 12V Adaptor, 20 pcs Jumper Wires.

- **Robotics: Rs. 2500/- only, which includes** :

  AVR/Arduino with cable, Robot Chasis, 2 Motors, 2 wheels, 1 castor wheel, Motor Clamps, Motor Driver with LED and switch, Line Sensor, Obstacle Sensor, Accelerometer, Bluetooth, Batteries, 20 pcs Jumper Wires

- **Gesture Controlled  Wireless Robotics: Rs. 2000/- only, which includes**:

  Adruino with cable, Accelerometer, Robot parts, On board Batteries (2), Motor Driver, Rf Module.

- **Arduino Mobile System Using GSM 900: Rs. 2200/- only, which includes**:

  Arduino with cable, GSM 900 Module, Matrix Keypad, LCD Module, Speaker, Headphone

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