ACADEMY OF ELECTRONICS, ROBOTICS & A.I.
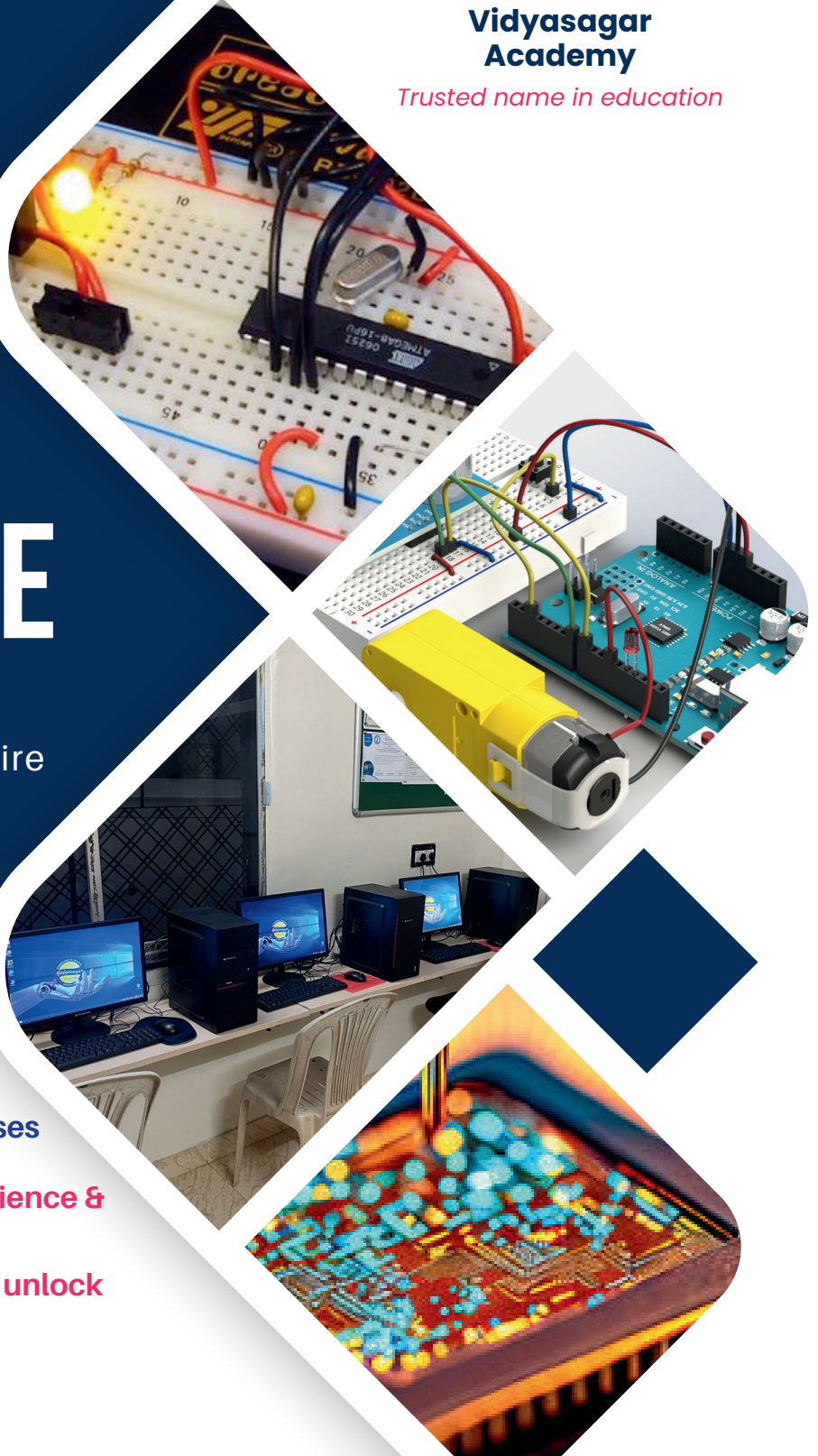
Vidyasagar Academy

Trusted name in education

ONLINE/OFFLINE

COURSES BROCHURE

Dive into the thrilling of hands-on practical & acquire real practical skill...!

✓ **Contact us to join online courses**

✓ **Master the practical skill in Science & Technology**
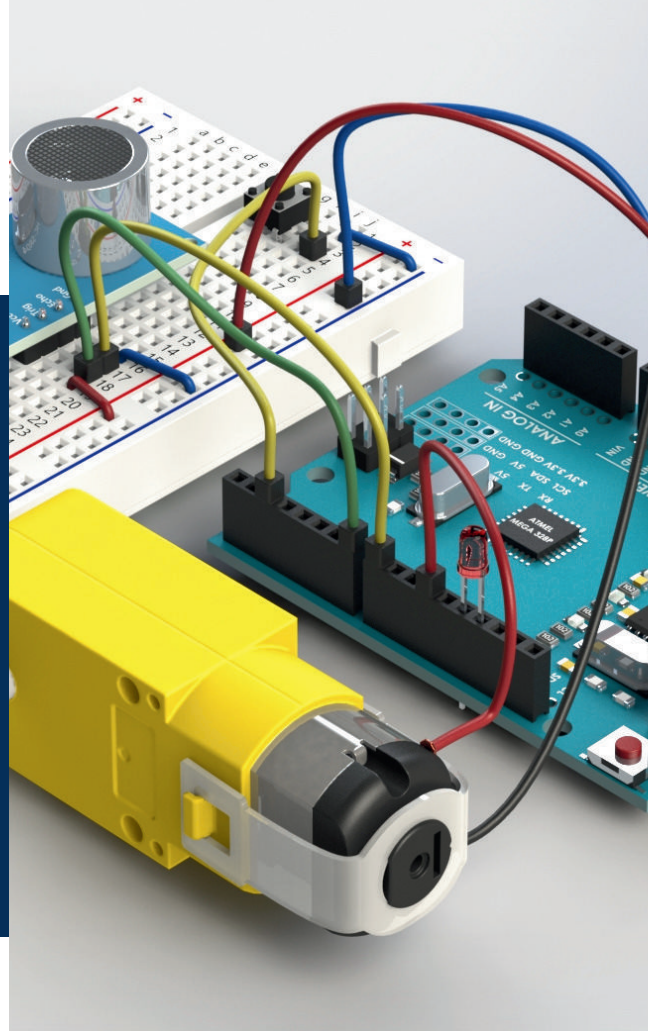
✓ **Begin your journey today and unlock the art of learning!**

Vidyasagar Academy
Trusted name in education

ABOUT US

Our academy was established
on the auspicious day of
**Guru Pornima
Saturday, 07 July 1990**

Our focus is to educate students
(and the teachers) **from scratch**
and create great **practical skill** in
Science & Technology...!

If you have zero knowledge in
Science & Technology, we're the
best choice for you...!

Why Choose Us?

We dedicatedly focus on the practical
teaching right from the first day in cozy
atmosphere of modern lab!

We guarantee to create best practical
skill in you about the prescribed course.

Highlights

Our expert international robotics trainers will teach you online / offline for
the practical courses in Core Electronics, Programming Languages,
Robotics, IoT, Web Designing and many more....

We have been practicing our educational methods under the guidelines of
Ministry of Education, Govt. of India and AICTE. Our practical teaching
methodologies have been praised by the famous American magazine
EEWEB. We have ATL Expert Mentor as one of the faculties.

We have trained 10000+ students and teachers since 1990. Our unique
teaching methodologies will definitely help you acquire great practical skill
in any of our courses...

OUR COURSES

FULLY PRACTICAL ORIENTED CERTIFIED COURSES

EXPERT FACULTIES

Our International Robotics Trainers will teach you with personal attention...

COURSE KIT

Our practical courses are available with complete kit for hands on apparatus to acquire perfect skill...

STUDY MATERIAL

Regularly updated best quality study material set containing workbooks, notes, problem statements...

TOP HIGHLIGHTS

- Practical oriented teaching, no boring theory...!

- Affordable course fees including practical kit

- Hi-Tech Computerized Lab with free & fast Wi-Fi facility

- High quality fully tested practical kit for each & every student

- Maximum 10 students per batch for personal attention

- Free revision sessions conducted weekly for our regular students

- Regular tests on topics for thorough preparation

- Get certificate of training after completing the course

Join us and learn how to learn...!

Practical Electronics Course (Level-1)

Course Duration: 20-25 days | Complete take home kit | Notes & Practical Workbook

Theory Topics with Demo

Concept of Atom, Concept of Electric Charge, Definition of Conductor & Insulator, Concept of Free Electron, Concept of Potential Difference (PD), Concept of Resistance, Concept of Electric Power, Measurement Scale, Use of Digital Multimeter, Important Symbols, Resistor Color Code Chart, Series & Parallel Combination of Resistors, Concepts of AC & DC, Transistor (NPN & PNP), Pin Configuration of Transistors, Details of Breadboard, Concept of Faraday's Laws of Electromagnetic Induction, Lenz's Law, Study of Transformer

Practical Experiments (10+)

Projects & Practical Tasks Allotment (with Practical Construction of Circuits)

Basic LED & Bulb Dimmer Circuit, Basic Heat Indicator & Alarm Circuit, Street Light Controlling System, Loop Wire Flashing LED Burglar Alarm, Water Level Alarm, Transistorized Sensitive Touch Switch, DC Motor Speed Controlling Circuit, Heat Controlled Fan, Transistor Sound Amplifier Circuit, Transistorized Regenerative Latch Circuit

Software Simulations

- Detailed Use of Circuit Wizard Electronics Circuit Simulation Software
- Detailed Use of Fritzing Breadboard Circuits Simulation Software

SYLLABUS

Practical Electronics Advanced Course (Level-2)
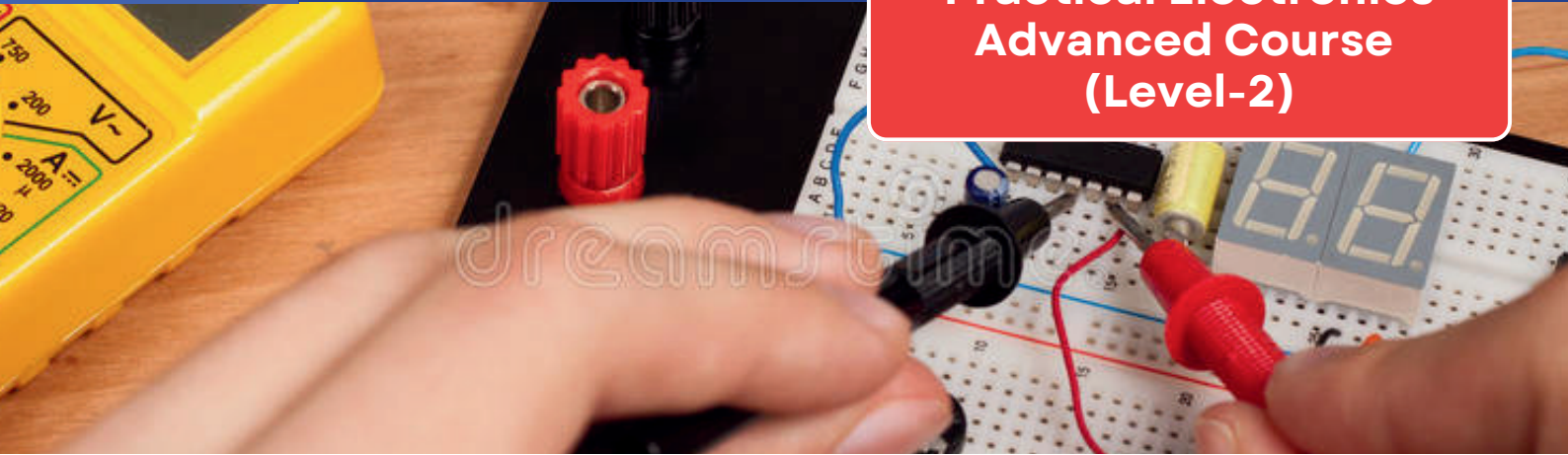
Course Duration: 30 days | Extended take home kit | Notes & Practical Workbook
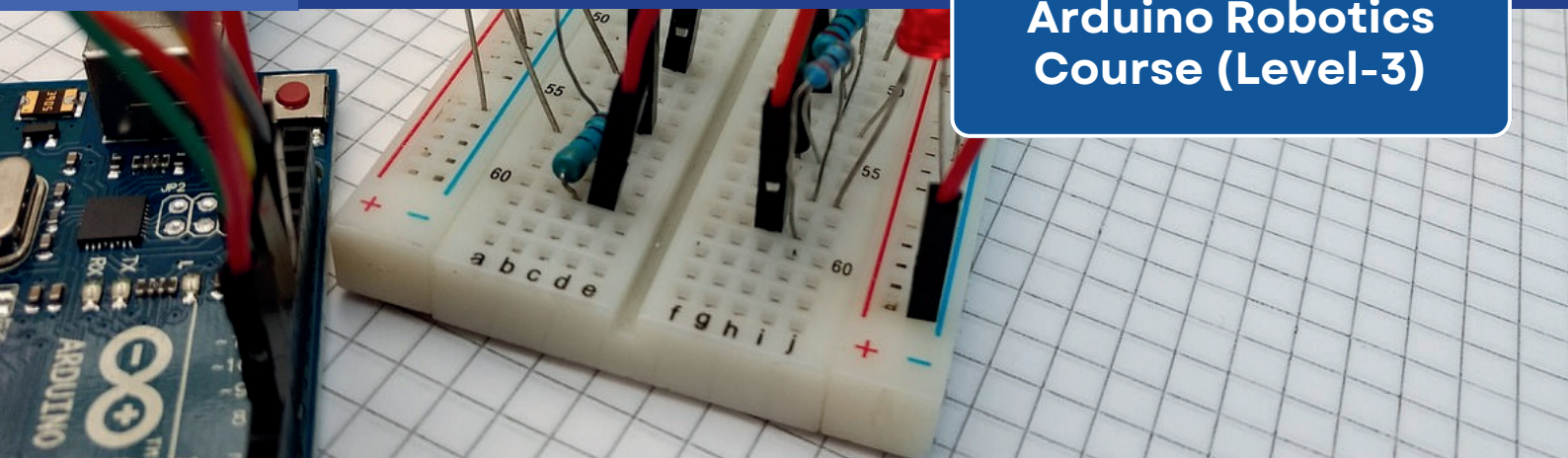
Theory Topics with Demo

Concept of Integrated Circuits, Concept of Amplifier, Details of IC 741 as operational amplifier, Details of IC 555 timer, Concept of Silicon Controlled Rectifier (SCR), Concept of Diac and Triac, Concept of Boolean Algebra – Boolean rules, Commutativity, Associativity, Direct Summing, etc., Concept of Logic Gates – very useful topic for Robotics Courses, Concept of De Morgan's Theorems, Concept of Half Adder & Full Adder, Concept of 4-bit Binary Adder, Concept of Multiplexer & Demultiplexer, Concept of Flip-Flops, Concept of Right/Left Shift Registers – very useful topic for Robotics Courses, Concept of Basic Counter Circuit

Practical Experiments (20+)

Construction of transistorized amplifier, Construction and working of IC 555 Timer as AMV, MMV & BMV, Construction and working of different applications of IC 555, Construction and working of IC 741 Opamp as Inverting Amplifier, Construction and working of IC 741 Opamp as Non-Inverting Amplifier, Construction and working of IC 741 Opamp as Buffer Circuit, Construction and working of IC 741 Opamp as Comparator – very useful to understand sensors in robotics, Construction and working of different applications of IC 741, Construction and working of AND, OR, NOT, NAND, NOR & Exclusive OR Logic Circuits, Construction and working of Half Adder & Full Adder Circuits, Construction and working of 4-bit Binary Adder, Construction and working of SCR Latch Circuit, Construction and working of Triac & Diac Circuit as 230V AC mains Dimmer, Construction and working of Flip Flops, Electronic Simulation to understand working of Right/Left Shift Registers and Counters

Software to Learn

- Detailed Use of Express PCB – complete PCB Designing Software
- Detailed use of Fritzing Automatic PCB Designer Software
- Introduction to LTSpice – High performance simulation software

Arduino Robotics Course (Level-3)

Course Duration: 20-25 days | Complete take home kit | Notes & Practical Workbook

Theory Topics with Demo

Basics of C/C++ Programming, Concepts of datatypes, functions, keywords, variables, built-in functions, etc., Understanding the Arduino IDE, How to use preferences in Arduino IDE?, Understanding built-in function of Arduino, Understanding built-in keywords of Arduino, How to use serial monitor and serial plotter in Arduino IDE?, How to edit the code with find/replace commands in Arduino IDE?, How to create user defined functions in Arduino Code?, Arduino Direct PORT Register Addressing Techniques – very useful topic for creating short codes, How to use Analog inputs in Arduino?, Working of different sensors: IR sensor, Sound sensor, US sensor, etc., Comparative analysis of Arduino UNO and Arduino Nano

Practical Experiments (15+)

Projects & Practical Tasks Allotment (with Practical Construction of Circuits)

Writing first code of blinking LED and buzzer beeps, Code of multiple LEDs with decorative effects, Project of Multiple Decorative LEDs using user defined functions, Basic code of Servo motor to set different rotating angles, Control servo motor using 'for' loop – application for CCTV camera controlling, Control servo motor using a potentiometer useful for remote controlling, Code of sound sensor controlled relay switch, Code of IR sensor controlled relay switch, Code of object of counter using IR sensor using Serial monitor, Code of Ultrasonic Sensor for distance measurement using Serial monitor, Project of using User Defined Functions (UDFs) in Arduino, Project of Arduino Calculator with Serial.print option, Project of LED Toggling using Boolean datatype ("running" keyword), Project of displaying analog input data on serial monitor/serial plotter, Project of direct port register addressing system

Software to Learn

- Understanding Arduino IDE – special software by Arduino.cc
- Detailed use of Fritzing Automatic PCB Designer Software

SYLLABUS

Arduino Robotics Advanced Course (Level-4)
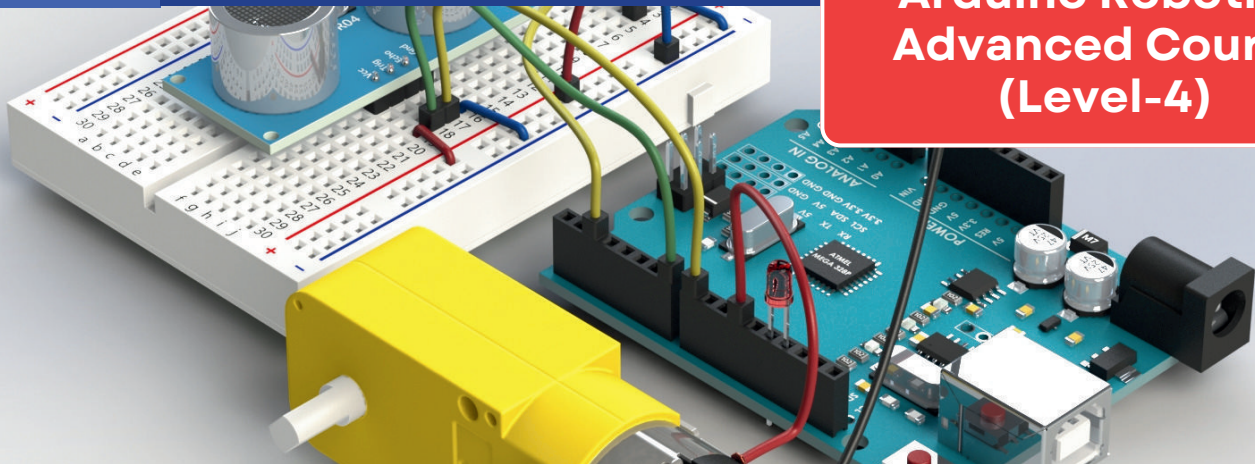
Course Duration: 20-25 days | Extended take home kit | Notes & Practical Workbook

Theory Topics with Demo

Advanced concepts of C++ Programming, Concept of Pointers & Arrays, Use of pointers & arrays in Arduino programming, Understanding the concept of Real Time Data Logging system , Steinhart-Hart empirical equation to measure real time temperature, How to create graphical presentation of data logging in MS Excel?, Use of arrays in servo motor teaching pendent for industrial automation, How to use serial monitor and serial plotter in Arduino IDE?, How to edit the code with find/replace commands in Arduino IDE?, Concept of real time position reading of servo motor, Concept of analogWrite and analogRead in Arduino, How to read/write Analog signals in Arduino? , Concept of PWM techniques in Arduino, How to generate tones in Arduino using Boolean datatype?, Understanding LCD display in Arduino circuits, Concept of Interrupt Service Routine (ISR) in Arduino

Practical Experiments (15+)

Projects & Practical Tasks Allotment (with Practical Construction of Circuits)

Code to generate different tones using Boolean datatype, Code of random LEDs switching using array technique, Code of PWM motor speed/LED brightness controlling, Code of Saw tooth wave, Sine wave generation in Serial plotter, Project of Automatic Overhead Water Tank controlling system, Project of Car Parking System, Project of Multitasking by merging two or more codes together, Project of teaching pendant using servo and potentiometer, Project of running LEDs decorative effect using array, Project of ISR code for speed controlling of motor, Project of 8-bit binary counter using arithmetic operator, Project of speed measurement using millis() function, Project of Quiz Controlling System using Arduino, Project of Sanguinoscope (Blood Group Monitoring System) using Arduino, Project of RPM Measurement using Arduino

Software to Learn

- Advanced use of Arduino IDE – special software by Arduino.cc
- Advanced use of VSCode coding software
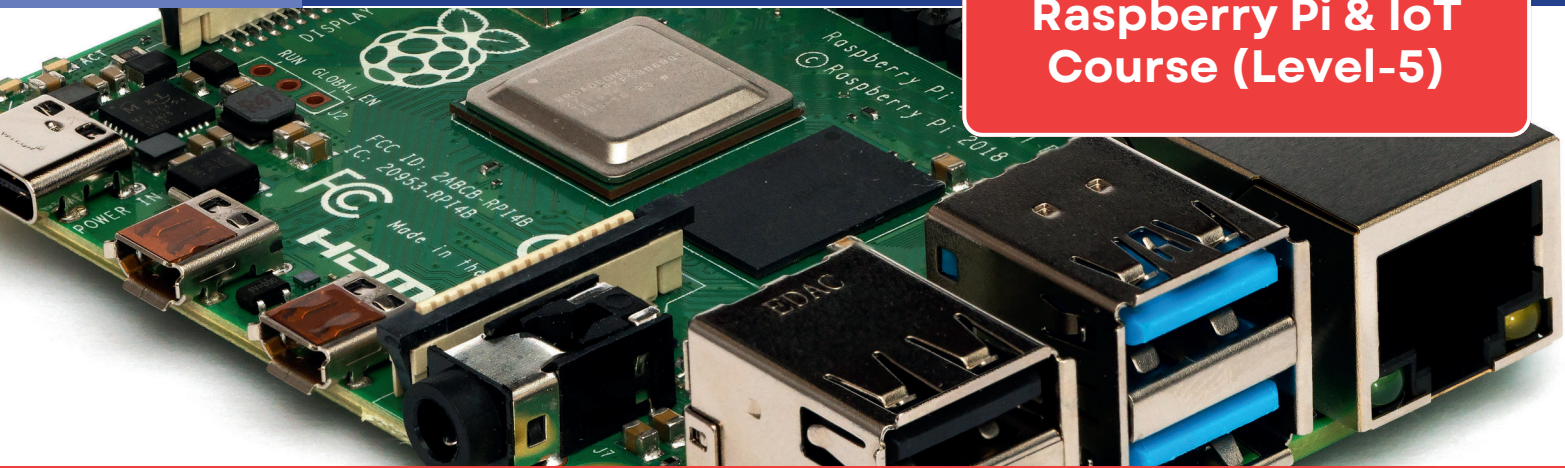
SYLLABUS

Raspberry Pi & IoT Course (Level-5)

Course Duration: 30 days | Complete take home kit | Notes & Practical Workbook

Theory Topics with Demo

Introduction to Python, Installation of PyCharm and Thonny and its applications, Installation of Raspberry Pi imager, Basic concepts in Python, The plus and concatenation concepts in Python, Variables in Python, Variable rules in Python , Datatypes in Python , Use of Python interpreter, basic commands, Lists, Tuples, Sets and Dictionaries in Python, Classes in Python, Isinstance(), indexing, slicing in Python, Membership operators in Python, Introduction to microPython, Libraries and modules in codes of microPython in Thonny, Interfacing Raspberry Pi development board with Thonny

Practical Experiments (10+)

Projects & Practical Tasks Allotment (with Practical Construction of Circuits)

Interfacing of different sensors with RPi, Writing first code of blinking LED in Thonny - GPIO interfacing, How to import libraries and modules in RPi coding?, How to control LED using user input from Shell, Object counter using RPi, WhatsApp interfacing with RPi - IoT based project, Web page interfacing with RPi - IoT based project, Humidity & Temperature data fetching on your mobile - IoT based project, Interfacing of Servo motor with RPi, Personal weather station using RPi - IoT based project, Use of Shell to control devices with user inputs, Server interfacing using RPi to store and fetch data - IoT based data logging project, New updated experiments with latest sensors and coding techniques.
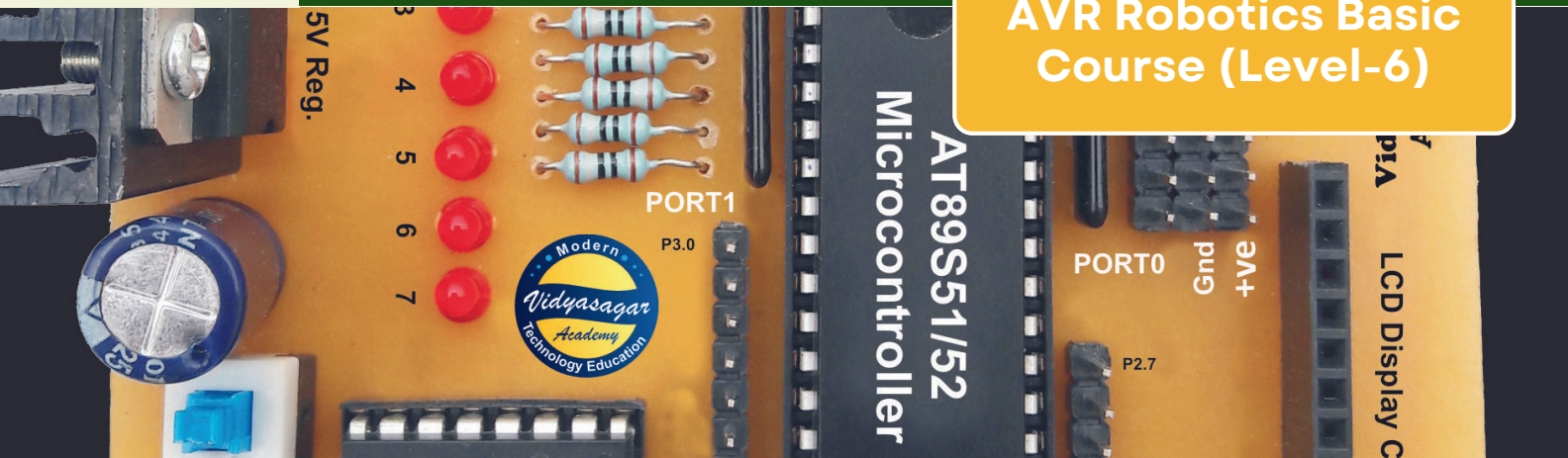
Software to Learn

- Thonny - compiler for the codes
- Geany - compiler for the codes
- Raspberry Pi imager - for advanced use of RPi new development boards

SYLLABUS

Course Duration: 30 days | Complete take home kit | Notes & Practical Workbook

Theory Topics with Demo

Basics of C/C++ Programming, Concepts of datatypes, functions, keywords, variables, built-in functions, etc., Formatted Input and Output functions, Documentation section, Link section, Definition section, Global declaration section, Main function section, Sub program section, Understanding the concept of while(1) in programming, Concept of conditional logic **if**, **if____else** statements, Concept of **while** loop, Concept of **for** loop, Concept of binary and hexadecimal systems – simple problems on the topics useful for coding, Installation of WIN AVR and AVR Studio 4 compiler, AVR loader for **usbASP** programming, Working of different sensors: IR sensor, Sound sensor, US sensor, etc., Comparative analysis **with Arduino w.r.t. direct port register addressing** technique.

Practical Experiments (15+)

Projects & Practical Tasks Allotment (with Practical Construction of Circuits)

Writing first code in AVR Studio 4 compiler and compile it in hex code, Writing code for decorative effect of 8 built-in LEDs at PORT1, Writing code for controlling LEDs at PORT1 using IR sensors, Writing code for black line following robot, Writing code for obstacle avoiding robot, Writing code for edge avoiding robot, Project of Servo motor controlling, Project of 7-segment LED display up/down counting with alarm, plus 10 more updated projects

Software to Learn

- Advanced use of AVR Studio 4 - compiler for the codes
- usbASP burner / loader software - to upload code in ATMegaXX MUC
- Advanced use of Fritzing for breadboard circuits presentation
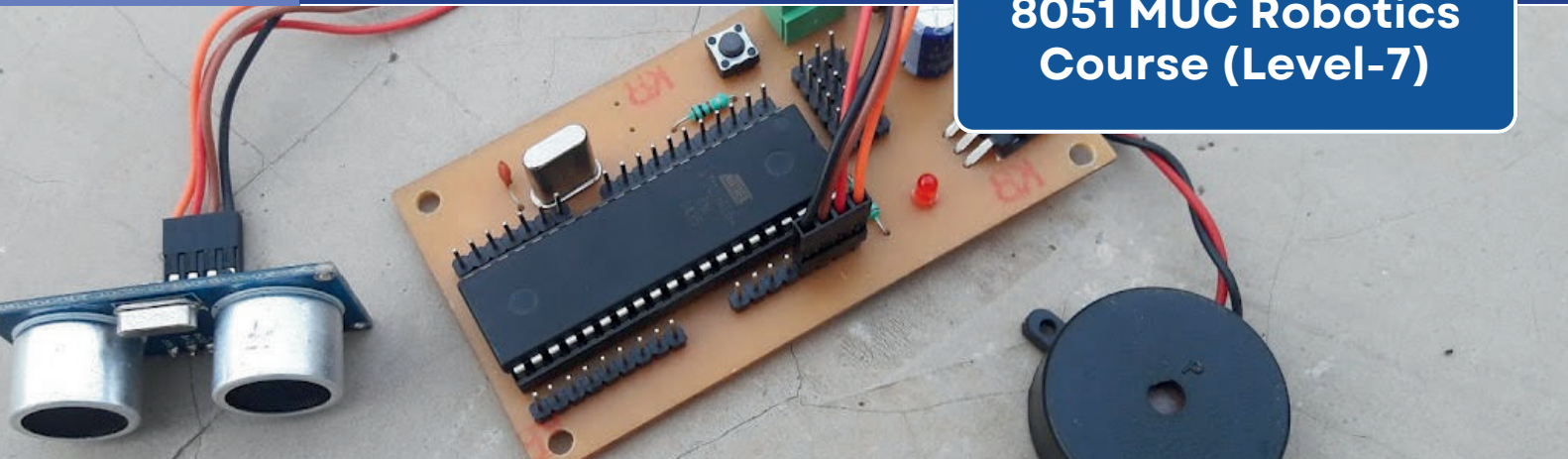
8051 MUC Robotics Course (Level-7)

Course Duration: 30 days | Complete take home kit | Notes & Practical Workbook

Theory Topics with Demo

Basics of C/C++ Programming, Concepts of datatypes, functions, keywords, variables, built-in functions, etc., Formatted Input and Output functions, Documentation section, Link section, Definition section, Global declaration section, Main function section, Sub program section, Understanding the concept of while(1) in programming, Concept of conditional logic if, if___else statements, Concept of while loop, Concept of for loop, Concept of binary and hexadecimal systems – simple problems on the topics useful for coding, **KeilµVision5** compiler installation and use, How to create project environment in KeilµVision5?, Installation of drivers for **USBasp programmer**, Installation and use of **progisp** burner software, Understanding the hardware and connection details of robotic trolley in your kit, Understating PORTS and Registers in 8051, Motion controlling codes for robotic trolley with sensors, Understanding the **motor driver IC L293D** for BU motors

Practical Experiments (15+)

Projects & Practical Tasks Allotment (with Practical Construction of Circuits)

Writing first code in KeilµVision5 compiler and compile it in hex code, Writing code for decorative effect of 8 built-in LEDs at PORT1, Writing code for controlling LEDs at PORT1 using IR sensors, Writing code for black line following robot, Writing code for obstacle avoiding robot, Writing code for edge avoiding robot, Project of Servo motor controlling, Project of 7-segment LED display up/down counting with alarm, plus 10 more updated projects. **The projects of 8051 course and AVR course are similar**.

Software to Learn

- Advanced use of KeilµVision5 - compiler for the codes
- progisp USBasp burner Software - to upload code in AT89S5X MUC
- Advanced use of Fritzing for breadboard circuits presentation

SYLLABUS

Web Designing Course (Level-8)

Course Duration: 30 days | Free WiFi for Classwork | Free personal domain & hosting for 1 year

Theory Topics with Demo

Understanding computer environment, Understanding the internet terminologies: user, data, keyword, WWW, browser, hyperlink, http and other protocols, webpage, website, WordPress, menu, header, footer, body, tag, category, theme, SEO, 400-503 errors, and many more…, Fundamentals of browsers, settings, customization and synching, bookmarks, cookies, etc., Fundamentals of HTML & DHTML – Hypertext Markup Language , Fundamentals of JavaScript – writing codes, Fundamentals of CSS – Cascading Style Sheets, writing codes, Practical demo of inline CSS in Free WordPress site, Details of WordPress dashboard – posts, pages, media, comments, appearance, users, tools, settings, Jetpack stats, Creating and customizing posts & pages, Decorating your website with themes, Create YouTube channel and customize it, Create social network on Facebook, Twitter, Pinterest, etc., Fundamentals of Search Engine Optimisation (SEO), Understanding terms of search engine like Google, Importing subscribers list in Jetpack

Practical Teaching

Projects & Practical Tasks Allotment (with Practical Construction of Circuits)

Installation of localhost with XAMPP, Creating databases and user accounts in MySQL, Installation of WordPress, Working of different menus in Dashboard of WordPress, Installation of required plugins, Registering domain name, creating hosting account, payment gateway, Basics of SEO – Search Engine Optimisation to rank our website in Google, Yahoo, Bing, etc.

Software to Learn

- Detailed use of XAMPP – server for localhost
- Detailed use of MySQL – to work on databases
- WordPress Dashboard - creating and publishing new post, installation of plugins, themes, etc.

Brand New Courses...

Coming Soon

www.vsa.edu.in