🌟 AS Academy Tech – Robotics & Embedded Systems Program

Beginner → Advanced | Age 12+ | Live Online Training

👋 Welcome to AS Academy Tech

AS Academy Tech was founded to make robotics, electronics, and embedded systems education accessible, practical, and industry-oriented. We believe learning should be project-based, hands-on, and built on strong fundamentals — not copy-paste coding.

Our mission: Create confident builders who can design, debug and deploy real embedded systems.
Our goal: Deliver affordable, high-quality training with live mentorship, real projects, and career-focused outcomes.

🏛️ About the Founder — Sagar Sharma

Founder, AS Academy Tech | Mechanical Engineer | Robotics & Industry 4.0 Enthusiast

AS Academy Tech was founded by **Sagar Sharma**, a passionate Mechanical Engineer with a deep interest in robotics, Industry 4.0, and the automotive domain. Driven by the belief that **engineers learn best by building**, he created AS Academy to bridge the gap between classroom theory and real-world engineering skills.

Under his leadership, AS Academy has evolved into a **future-focused learning platform** offering practical and affordable training in:

- Embedded Systems
- Arduino Robotics
- Bare-Metal Programming
- PCB Design
- IoT Automation
- Mechanical Projects & Prototyping

Sagar's mission is simple:
Make high-quality engineering education accessible, hands-on, and industry-relevant.

Through project-based learning, live mentorship, and portfolio-focused training, AS Academy empowers school students, beginners, and working professionals to:

- Build strong engineering fundamentals
- Create real hardware projects
- Develop job-ready skills
- Step confidently into core engineering roles

"Learning by building is not just a method — it's the future of engineering education."
— **Sagar Sharma, Founder**

👩‍🏫 Meet the Lead Instructor — Ashwini Sharma

Embedded Systems & IoT Engineer | R&D Experience | Robotics & Firmware Specialist

Your instructor for the Arduino, AVR, Embedded Systems & Robotics programs is **Ashwini Sharma**, an experienced engineer with a strong background in **Embedded Security, Firmware Development, and Robotics** through work with a **premier R&D organisation**.

With **4+ years of professional experience**, Ashwini specializes in:

- ✔ Embedded C / C++
- ✔ AVR & ARM Microcontrollers
- ✔ Robotics & Automation
- ✔ IoT & Firmware Development
- ✔ Sensor Interfacing & Protocols (UART, SPI, I2C)
- ✔ SDR & Communication Tools
- ✔ Register-Level (Bare-Metal) Programming

Ashwini has mentored **over 200 students** across robotics, embedded programming, and IoT domains, known for a teaching style that makes complex engineering topics simple, logical, and hands-on.

Teaching Philosophy:

- Learn by building
- Understand the "why" behind the code
- Focus on debugging, not memorizing
- Build confidence through projects, not theory

Learn from a real engineer who designs and builds industrial-grade systems — not a hobby trainer.

📚 Our 3 Course Tracks

Choose the learning path that fits your level & goals:

1. **Arduino Basics & Robotics — 45 Hours** (Age 12+)
2. **AVR Bare-Metal Embedded Programming — 45 Hours** (Advanced/Engineering)
3. **Full Combo: Arduino + AVR — 90 Hours** (Beginner → Advanced)

Each course is project-focused, includes live sessions, doubt support and certificates.

🟦 Course 1 — Arduino Basics & Robotics (45 Hours)

Perfect for: Students (12+), hobbyists, school/college beginners.

What you learn

- Electronics fundamentals, breadboarding, sensors & actuators
- Arduino IDE & programming basics (variables, loops, functions)
- PWM, timers basics, serial communication
- Motor drivers, basic robotics logic
- Intro to IoT using ESP8266
- Project portfolio (12 projects: 10 mini + 2 major)

Arduino Project List (12 Projects)

Module 1: Basics – Mini Projects

1. LED Blinking Patterns — digital I/O & timing
2. Traffic Light Simulation — sequencing logic with LEDs
3. Light-Controlled Fan (LDR) — sensor based automation
4. Obstacle Detection Alert — ultrasonic sensor + buzzer
5. PWM Fan Speed Controller — motor speed using PWM

⭐ **Major Project 1 — Line Follower Robot**
Full autonomous bot with IR sensors, motor drivers, chassis & logic.

Module 2: Robotics Applications – Mini Projects
6. Obstacle Avoidance Robot (Basic) — ultrasonic-based avoidance
7. Smart Door Lock System — keypad + servo locking
8. Basic Home Automation System — relay-based appliance control
9. Smart Garden Auto-Watering System — soil moisture sensor + pump relay
10. IoT Room Monitor (ESP8266) — temp/humidity → cloud

⭐ **Major Project 2 — Pet Health Monitoring System (Arduino + ATmega328P)**
Wearable prototype to track temperature, pulse & activity. *(Dedicated to Wisky 💙)*

🟩 Course 2 — AVR Bare-Metal Embedded Programming (45 Hours)

Perfect for: Engineering students, embedded job aspirants, Arduino users wanting low-level mastery.

What you learn

- AVR architecture, registers (DDR/PORT/PIN), memory map
- Toolchain setup (AVR-GCC / makefiles)
- Timers, PWM, interrupts, ADC, UART, SPI, I2C (register level)
- Low-level driver development & firmware optimization
- Project portfolio (12 register-level projects)

AVR Project List (12 Projects)

Module 5: Register-Level Basics – Mini Projects

1. LED Toggle Using Registers — direct DDR/PORT control
2. LED Chaser (Bare-Metal) — running LED pattern via registers
3. Push Button with Debouncing — robust input handling
4. Timer-Based Delay Generator — accurate delays using timers
5. PWM Fan Controller (Bare-Metal) — register-level PWM

⭐ **Major Project 1 — Digital Speedometer (RPM Measurement)**
Timers & counters to measure RPM/speed in real time.

Module 6–7: Interrupts & Peripherals – Mini Projects
6. Interrupt-Driven LED Blink — external interrupt handling
7. Traffic Light Controller (Bare-Metal) — realistic timed control
8. ADC Sensor Reader + UART Display — analog read → serial stream
9. Embedded Calculator (Keypad + Display) — basic arithmetic device
10. SPI & I2C Communication Demo — sensor comms without libraries

⭐ **Major Project 2 — Robotic Car with Remote Control (Bare-Metal)**
Complete register-level remote-controlled robotic car (no Arduino libraries).

🟧 Course 3 — Full Combo: Arduino + AVR (90 Hours)

Perfect for: Learners who want full stack embedded skills — application level + firmware level.

What you learn

- Everything from Course 1 + Course 2
- Hybrid projects combining Arduino convenience with bare-metal performance
- Capstone options: autonomous robots, sensor fusion systems, IoT-enabled devices
- 24 projects total (20 mini + 4 major across both stacks)

✨ Why Students Choose AS Academy Tech

- **Industry-grade instructor** with R&D experience — practical insights, not just theory.
- **Project-first approach** — each lesson maps to a circuit + code + debugging session.
- **Complete support** — live doubt clearing, code reviews, portfolio guidance.
- **Balanced depth** — beginner friendly (Arduino) and career oriented (bare-metal).
- **Age inclusive** — suitable from age 12 to professionals.

📊 Comparison Snapshot

Feature	AS Academy Tech	Udemy/YouTube	Generic Institutes
Instructor	Embedded Engineer (R&D)	Hobby Trainers	STEM Tutors
Live Classes	✔	✖	✔ (limited)
Projects	12–24	3–5	4–6 basic
Bare-Metal (Register-level)	✔	✖	Rare
IoT + Robotics	Full	Partial	Limited
Support	Personalized	None	Limited
Value	High	Low–Medium	Expensive/Low Depth

💰 Transparent Pricing

Course	Hours	Actual Price	Discounted Price
Arduino Basics	45h	₹12,000	**₹8,499**
AVR Bare-Metal	45h	₹14,000	**₹9,999**
Full Combo (Arduino + AVR)	90h	₹20,000	**₹15,000**

Hardware kits (optional) are priced separately. Payment plans and early-bird discounts available.

🔍 Competitor Pricing Comparison Table

❗ *Note:* Competitors do NOT provide both Arduino **AND** Bare-Metal AVR in one course.
Many do not teach register-level drivers at all.
This makes our Combo course **unique and high-value**.

Provider / Platform	Course Type	Live/Recorded	Duration	Project Count	Bare-Metal (Register Level)	Price Range
AS Academy Tech (YOU)	Arduino Basics	**Live**	**45h**	**12 projects**	✖	**₹8,499**
	AVR Bare-Metal	**Live**	**45h**	**12 projects**	✔ Full	**₹9,999**
	Full Combo (Arduino + AVR + Robotics)	**Live**	**90h**	**24 projects**	✔✔ Complete	**₹15,000**
Mechetronrotics	Basic Arduino + Project	Live	10–20h	3–5	✖	₹8,000–₹12,000
	Robotics (Basic)	Live	15–20h	4–6	✖	₹12,000–₹18,000
Udemy	Arduino Basics	Recorded	5–8h	3–5	✖	₹500–₹3,500
	Embedded C (Beginner)	Recorded	7–10h	2–3	✖	₹400–₹2,000
STEM/School Robotics Institutes	Basic Robotics & Sensors	Live	10–15h	3–5	✖	₹10,000–₹20,000
Generic Online Bootcamps	Embedded Systems Course	Live/Hybrid	60–100h	5–10	Partial (not AVR)	₹30,000–₹90,000

🔥 Highlights

✔ **AS Academy Tech offers double the hours + real projects at lower pricing**

Competitors offer:
- 10–20 hour courses
- 3–5 small projects
- No bare-metal
- Higher pricing (₹12,000–₹18,000)

We offer:
- **45–90 hours live learning**
- **12–24 projects**
- **Both Arduino + AVR**
- **Full register-level embedded programming**

✔ **No competitor gives a full 90-hour combo course at ₹15,000**
Bootcamps charge **₹30,000 to ₹90,000** for embedded systems programs.
Your combo course is:
- Affordable
- More hands-on
- More project-rich
- More industry-oriented
- Taught by an actual embedded engineer

✔ **Only AS Academy Tech teaches BOTH application-level Arduino AND register-level bare-metal in one track**

This is extremely rare in India.

Feature	AS Academy Tech	Mechetronrotics	Udemy	STEM Institutes	Bootcamps
Live Classes	✔	✔	✖	✔	✔
Hours	**45–90h**	10–20h	5–8h	10–15h	60–100h
Projects	**12–24**	3–6	2–3	3–5	5–10
Bare-Metal AVR	✔ Full	✖	✖	✖	Partial
Arduino	✔ Full	✔ Basic	✔ Basic	✔ Basic	✔ Basic
Robotics	✔ Advanced	Basic	No	Basic	Some
Price	**₹8,499–₹15,000**	₹8,000–₹18,000	₹500–₹3,500	₹10,000–₹20,000	₹30,000–₹90,000
Value for Money	████████	█████	███	███	██████

🎓 Certification & Outcomes

Upon completion students receive:
- Course completion certificate(s) (Arduino / AVR / Combo)
- GitHub portfolio guidance (project code & documentation)
- Project demo for resume/college applications

Career benefits: Better preparedness for internships, embedded roles, robotics competitions, science fairs.

📝 Enrolment Details

- **Mode:** Live Online Classes (recordings available)
- **Support:** Live doubt sessions, code reviews
- **Contact / Enroll:** Visit **https://asacademytech.com** or WhatsApp/Call **(Add your number here)**