


महाराष्ट्र MAHARASHTRA ◑ 2025 ◑ EE 939582

उप कोषागार कार्यालय

उप कोषागार अधिकारी
कल्याण

**MEMORANDUM OF UNDERSTANDING (MoU)**

This Memorandum of Understanding (**"MoU"**) is executed on this

27th day of March ***2026*** at Dombivli, Maharashtra.

**BETWEEN**

**PHN Technology Private Limited,**
a company incorporated under the provisions of the Companies Act, 2013,
having its registered office at Tower A, Giga Platinum, Viman Nagar Rd, near Akoya Skoda Showroom, Clover Park, Viman Nagar, Pune, Maharashtra 411014
acting through its Authorized Signatory,
(hereinafter referred to as **"PHN"**, which expression shall, unless repugnant to the context or meaning thereof, include its successors and permitted assigns);

23 MAR 2026

**AND**

**Name of College / Institution:** Jahnvis Multi Foundation's Vande Mataram College of Arts, Commerce & Science (Engineering / Polytechnic / BCA / MCA College)
having its address at JMF Sanskriti Vihar, Dr.Nemade Road, Telcoswadi, Kopar, Dombivli (W), Thane, Maharashtra - 421202
acting through its authorized representative Dr.Rajkumar M. Kolhe, Founder President,
(hereinafter referred to as the **"Institution"**).

PHN and the Institution are hereinafter individually referred to as a **"Party"** and collectively as the **"Parties."**

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## 1. PURPOSE

The purpose of this Memorandum of Understanding ("MoU") is to establish a collaborative framework between **PHN Technology Private Limited** and the **Institution** to promote industry–academia interaction and to complement the existing academic curriculum by providing students with exposure to practical, industry-oriented learning.

This MoU aims to facilitate the establishment and operation of an advanced **Technology Laboratory** within the Institution's premises and to enable the conduct of **optional, non-mandatory training, certification, skill development, and experiential learning programs** in emerging technologies.

The collaboration under this MoU is intended solely for academic enrichment, skill enhancement, and employability development of students and shall not interfere with or replace the Institution's prescribed academic curriculum, statutory requirements, or regulatory compliances.

## 2. SCOPE OF COLLABORATION

Subject to the terms and conditions of this Memorandum of Understanding ("MoU"), **PHN Technology Private Limited** shall establish, install, operate, and manage a **Technology Laboratory** within the premises of the Institution and shall provide industry-relevant training and skill development programs for students.

The scope of collaboration under this MoU shall include, without limitation, the following activities:

a. Establishment, installation, operation, and maintenance of a fully functional Technology Laboratory within the Institution's premises (as per Annexure A), wherein PHN Technology Private Limited shall provide only the necessary technical materials, equipment, kits, and learning resources required for the laboratory. It is expressly agreed that PHN shall not provide any furniture, including tables, chairs, racks, or fixtures, nor any laptops, desktop computers, or related IT infrastructure

b. Design and conduct of technology-based training camps, Professional trainings and short-term programs, including the provision of take-away learning kits for hands-on practical learning **(As per Annexure B)**;

c. Delivery of IIT's certification programs, skill development courses, and industry-oriented training modules in emerging technologies;

d. Delivery of ISRO, Skill India, NSDC certification programs.

e. Organization and conduct of workshops, seminars, guest lectures, and Faculty Development Programs (FDPs);

f. Provision of hands-on training, project-based learning, and practical industry exposure to students;

g. Facilitation of industry–academia interaction initiatives, including expert talks and collaborative activities;

h. Offering internship opportunities, live projects, and project guidance to eligible students, subject to availability and PHN's sole discretion.

i. To provide platform to Visit IIT campuses.

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For the avoidance of doubt, all programs and activities conducted under this MoU shall be **optional and non-compulsory** for students. However, college will help PHN to get maximum no of students count for the program offered. To avail the benefits under this MoU, PHN shall charge a nominal subscription fee to interested students, through which they will be eligible to receive substantial discounts on the courses listed in Annexure B.

### 2.1 TIMELINE FOR LAB ESTABLISHMENT

The Parties mutually agree that the PHN Technology Laboratory will be established and made operational in the next academic year.

PHN Technology Private Limited shall begin the lab setup process once the Institution provides the required infrastructure, including suitable space, electricity, internet connectivity, furniture, and other basic facilities.

If the Institution fails to provide the necessary infrastructure on time, the lab setup schedule shall be extended accordingly, and PHN shall not be responsible for any resulting delay.

## 3. FINANCIAL UNDERSTANDING

### 3.1 Lab Setup Investment

PHN Technology Private Limited shall, at its own cost and expense towards the establishment of the Technology Laboratory within the Institution's premises.

The aforesaid investment shall include, without limitation, procurement and deployment of the following, as detailed in **Annexure A**:

a. Hardware and computing devices
b. Software tools
c. Training and learning kits
d. Lab infrastructure support components
e. Initial setup, installation, and commissioning of the Technology Laboratory

### 3.2 Ownership and Control of the Technology Lab

a. All equipment, hardware, software, tools, training kits, instructional materials, and any other assets installed, supplied, or provided by PHN under this MoU shall remain the **sole, absolute, and exclusive property of PHN Technology Private Limited** at all times.

b. The Institution shall act solely as a **host and facilitator** of the Technology Laboratory and shall not acquire any right, title, interest, lien, or claim of ownership in respect of the Technology Laboratory or any of its assets.

c. The **standard operating procedures (SOPs)**, usage guidelines, operational protocols, and access controls for the Technology Laboratory shall be determined and prescribed by PHN Technology Private Limited, **in consultation with the Institution**, in accordance with **Annexure C**, and shall be binding on the Institution and all users of the laboratory.

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## 4. COURSE STRUCTURE & DELIVERY MODEL

a. PHN Technology Private Limited shall design, develop, and conduct multiple industry-oriented courses, training programs, and certification modules in emerging and advanced technology domains, which may include, without limitation:

Artificial Intelligence (AI)

Internet of Things (IoT)

Robotics

Embedded Systems

Automation Technologies

Industry 4.0 and allied technologies

Other emerging and future-ready technology domains

b. The courses, programs, and training activities conducted in the Technology Laboratory shall be governed by the following principles:

i. Participation in such courses shall be optional and non-compulsory for students of the Institution;

ii. The courses shall be offered at reasonable, minimal, and affordable fees, as determined by PHN Technology Private Limited;

iii. The courses shall be open to students from all departments and disciplines of the Institution, subject to eligibility criteria, if any, prescribed by PHN;

iv. PHN may, at its discretion, extend participation in such courses to external participants, without affecting or prejudicing the interests of the Institution or its students.

For the avoidance of doubt, the courses conducted under this clause shall supplement academic learning and shall not replace, modify, or interfere with the Institution's prescribed academic curriculum or statutory academic requirements.

## 5. FACULTY & MANPOWER ARRANGEMENT

### 5.1 Deployment of Trainers

PHN Technology Private Limited shall, at its sole cost and discretion, deploy **qualified Master Trainers, Lead Instructors, and technical staff** required for conducting courses, training programs, workshops, and skill development activities in the Technology Laboratory. The deployment, roles, and responsibilities of such trainers shall be determined exclusively by PHN.

### 5.2 Internship Opportunities

PHN may, at its sole discretion, offer **an internship** to eligible students of the Institution.

The **selection criteria, duration, scope of work, responsibilities, stipend, and all other terms and conditions** relating to such internship opportunities shall be determined **exclusively by PHN**, and the Institution shall have no obligation or liability in this regard.

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For the avoidance of doubt, participation in such internships shall be **voluntary** for students and shall not constitute a right or entitlement under this MoU.

**6. ROLES & RESPONSIBILITIES OF PHN**

PHN Technology Private Limited shall be solely responsible for the following in connection with the establishment and operation of the Technology Laboratory and the delivery of training programs under this MoU:

a. **Investment and Lab Establishment:** Making all financial and material investments required for the setup, installation, and operationalization of the Technology Laboratory within the Institution premises.

b. **Curriculum and Study Material:** Designing, developing, and providing all course content, curriculum, instructional material, manuals, and training aids necessary for the programs conducted in the Technology Laboratory.

c. **Deployment of Trainers:** Recruiting, deploying, and managing qualified Master Trainers, Lead Instructors, and technical personnel required for conducting programs, workshops, certification courses, and skill development initiatives.

d. **Provision of Hardware and Software:** Supplying all equipment, hardware, software, tools, learning kits, and related resources required for the effective functioning of the Technology Laboratory and delivery of training programs.

e. **Certification:** Facilitating and issuing participation or course completion certificates to students who successfully complete the programs, in coordination with the Institution where applicable.

f. **Marketing and Promotion:** Conducting all marketing, promotion, and awareness activities related to the programs, courses, and workshops under this MoU.

g. **Assessments and Evaluations:** Conducting practical assessments, evaluations, and project reviews in accordance with the training and certification programs.

h. **Maintenance of Lab Equipment:** Ensuring proper maintenance and upkeep of all lab equipment, hardware, software, and tools supplied by PHN, subject to **normal wear and tear.**

For the avoidance of doubt, PHN shall have **full operational control** over the Technology Laboratory, its programs, and related resources, while the Institution's role shall be limited to facilitation and support as defined elsewhere in this MoU.

**7. ROLES & RESPONSIBILITIES OF THE INSTITUTION**

The Institution agrees to provide reasonable cooperation and facilitation for the successful establishment, operation, and management of the **PHN Technology Laboratory** and associated programs under this MoU. Specifically, the Institution shall be responsible for:

a. **Infrastructure Support:** Providing a suitable space for the Technology Laboratory, along with uninterrupted electricity, internet connectivity, furniture, security, and housekeeping services required for smooth operation.

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b. **Promotion of Programs:** Assisting in promoting the training programs, courses, workshops, and skill development initiatives conducted by PHN to students of the Institution, without any obligation to collect fees or manage registrations.

c. **Coordination Support:** Providing timely administrative support and coordination as may be reasonably required for the execution of programs, including facilitating access to students, faculty, and institutional resources.

d. **Single Point of Contact (SPOC):** Nominating a dedicated **Single Point of Contact (SPOC)** to liaise with PHN for all operational, logistical, and coordination matters.

e. **Non-Interference:** Ensuring that PHN is able to operate the Technology Laboratory, conduct courses, deploy trainers, and execute programs **without obstruction, interference, or delay**, subject to compliance with institutional rules and regulations.

For the avoidance of doubt, the Institution shall **not have any ownership rights** over the Technology Laboratory, its equipment, curriculum, intellectual property, or any other resources supplied by PHN, and its role shall be strictly facilitative in nature.

**8. REVENUE MODEL & FEE COLLECTION**

**8.1 Paid Courses and Programs**

All courses, training programs, workshops, camps, and certification initiatives conducted in the **PHN Technology Laboratory** shall be offered on a **paid basis**, with the schedule, fee structure, and payment terms determined **exclusively by PHN Technology Private Limited.**

**8.2 Fee Collection**

a. All participation fees for the courses, programs, or camps shall be **collected directly and solely by PHN Technology Private Limited** through its authorized payment collection systems. The Institution shall **not collect, handle, or account for any fees** under this MoU.

b. PHN shall bear **all operational expenses**, including, without limitation, trainers' remuneration, course material, kits, marketing, certification, and logistics. The Institution shall have **no financial liability or responsibility** in this regard.

**8.3 Revenue Sharing**

**The Parties mutually agree that revenue sharing shall commence only after the complete recovery of a minimum amount of ₹5,00,000 (Rupees Five Lakh Only) invested towards the laboratory initiative. Until such recovery is achieved, all revenues generated from the said initiative shall be retained by the investing party. This clause is agreed upon as a prerequisite condition for initiating revenue sharing between the Parties**

a. **Revenue from Programs:** All revenues generated from only courses, certification programs, workshops, technology camps, and other training activities conducted in the PHN Technology Laboratory at college premises shall be shared as follows:

- **PHN Technology Pvt. Ltd.: 70% (Seventy Percent)**
- **Institution: 30% (Thirty Percent)**

b. **Payment Mechanism:** PHN shall calculate the Institution's 30% revenue share **on the net fees collected** for each completed batch and remit payment to the Institution **within fifteen (15) working days** after successful completion of the respective course or program.

c. **Taxes and Deductions:** Any statutory taxes, levies, or deductions applicable under prevailing law shall be deducted by PHN before remittance of the Institution's share.

d. **Operational Costs:** All expenses incurred for trainers, course material, learning kits, marketing, certification, and program execution shall be borne **solely by PHN Technology Private Limited,** and the Institution's revenue share shall **not be subject to any deductions** for such operational costs.

e. **Non-Interference in Collection:** The Institution shall not collect any fees directly from students or participants for programs conducted under this MoU, nor shall it interfere in PHN's fee collection process.

## 9. ASSET OWNERSHIP AND PROTECTION

### 9.1 Ownership of Lab Assets

All equipment, hardware, software, learning kits, and other materials provided by PHN Technology Private Limited for the purpose of establishing and operating the Technology Laboratory shall remain the **exclusive property of PHN**, and nothing in this MoU shall be construed as granting the Institution any ownership rights or title thereto.

### 9.2 Responsibilities of the Institution

The Institution shall be fully responsible for ensuring the **safety, security, and proper use** of all lab equipment and materials provided by PHN, including but not limited to:

a. Preventing theft, loss, or damage to the lab assets;
b. Ensuring proper and authorized use of equipment, software, and training kits;
c. Providing necessary security arrangements, supervision, and maintenance support to safeguard PHN assets.

### 9.3 Liability for Loss or Damage

Any loss, theft, damage, or destruction of lab assets resulting from **negligence, misuse, or willful misconduct** by the Institution, its employees, students, or contractors shall be **recoverable from the Institution**, and PHN shall have the right to claim full replacement or repair costs.

### 9.4 Inspection Rights

PHN shall have the **unrestricted right to inspect, audit, and verify** the condition, use, and maintenance of all assets provided for the Technology Laboratory at any reasonable time, without prior consent from the Institution, to ensure compliance with the terms of this MoU.

## 10. CERTIFICATION

a. PHN Technology Private Limited shall facilitate the issuance of certificates of participation, course completion, and/or skill proficiency to students who successfully complete the programs, courses, or training activities conducted under this MoU in the Technology Laboratory.

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b. PHN shall provide various certification courses in collaboration with reputed and recognized organizations including, but not limited to, IITs, ISRO, Skill India, NSDC, and other relevant national or international certification bodies, as may be applicable from time to time.

c. Certificates for such programs shall be issued by PHN Technology Pvt. Ltd. either independently or jointly with the concerned certifying organization, as per the nature and requirements of the respective course or program, unless otherwise mutually agreed in writing between the Parties.

d. The design, content, format, evaluation criteria, and issuance process of all certificates shall be determined solely by PHN. The Institution shall extend necessary and reasonable cooperation, including authentication, verification, or co-signing of certificates, wherever required.

e. The issuance of certificates under PHN programs shall be purely supplemental in nature and shall not confer any academic credit, degree equivalence, or modification to the Institution's prescribed curriculum. Participation in such programs shall remain voluntary for students.

**11. CONFIDENTIALITY**

a. **Definition of Confidential Information:** For the purposes of this MoU, "Confidential Information" shall include, without limitation, course content, curriculum, training methodologies, business models, pricing and fee structures, technical know-how, software, project designs, learning kits, and any other information disclosed by one Party to the other, whether in written, electronic, or oral form.

b. **Obligation of Confidentiality:** Both Parties agree to maintain strict confidentiality regarding all Confidential Information received from the other Party and shall not disclose, share, or use such information for any purpose other than for the performance of obligations under this MoU.

c. **Exclusions:** Confidential Information shall not include information that:
i. is or becomes publicly available through no fault of the receiving Party;
ii. was lawfully in possession of the receiving Party prior to disclosure;
iii. is independently developed by the receiving Party without reference to the Confidential Information; or
iv. is required to be disclosed by law, regulation, or court order, provided the disclosing Party is given prior notice.

d. **Survival:** The obligations under this Clause shall survive **termination or expiry** of this MoU for a period of **five (5) years**.

**12. DURATION OF MoU**

a. This MoU shall remain valid and in force for a period of **five (5) years** from the **date of execution**.

b. The MoU may be **renewed or extended** upon mutual written agreement of the Parties, under such terms and conditions as may be mutually agreed.

c. Unless renewed, this MoU shall **automatically expire** at the end of the five-year term, without prejudice to the rights and obligations accrued prior to expiry, including but not limited to confidentiality, asset ownership, and revenue settlement.

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## 13. TERMINATION

### 13.1 Termination by Mutual Consent

This MoU may be terminated at any time by **mutual written consent** of both Parties, specifying the effective date of termination.

### 13.2 Termination at PHN's Sole Discretion

PHN Technology Private Limited reserves the **absolute and unconditional right** to terminate this MoU **immediately and at its sole discretion**, without assigning any reason and **without any liability, obligation, or financial commitment** towards the Institution under below Conditions.

b. 7 Days prior notice when lab is not installed by PHN Technology Pvt. Ltd.

c. 30 Days prior when Lab is installed.

### 13.3 Effect of Termination

Upon termination of this MoU, irrespective of the reason:

a. PHN shall have **full, unrestricted, and unconditional rights** to remove all equipment, software, learning kits, and other materials supplied to the Institution for the Technology Laboratory.

b. The Institution shall extend **full cooperation** to PHN for the **safe, timely, and unhindered removal** of all assets.

c. The Institution shall **not raise any claims, compensation demands, or objections** against PHN in relation to the removal of assets or cessation of operations.

d. Termination may also result from, but is not limited to:

- Misuse or unauthorized use of lab equipment or resources;
- Non-cooperation or obstruction in the operation of PHN programs;
- Damage, loss, or negligence concerning PHN assets.

e. All rights, obligations, and liabilities that have **accrued prior to termination**, including revenue sharing, confidentiality obligations, and asset protection, shall **survive termination** of this MoU.

## 14. INTELLECTUAL PROPERTY

a. **Ownership:** All training materials, course content, software, learning kits, methodologies, and any other intellectual property developed, supplied, or used by PHN Technology Pvt. Ltd. in connection with the Technology Laboratory or programs under this MoU shall remain the **exclusive property of PHN Technology Pvt. Ltd.**

b. **License:** The Institution is granted a **non-exclusive, non-transferable, revocable license** to use PHN's intellectual property solely for facilitating the programs and activities under this MoU, and for no other purpose.

c. **Restrictions:** The Institution shall **not copy, reproduce, modify, distribute, sell, or otherwise exploit** PHN's intellectual property in any form without prior written consent from PHN.

d. **Survival:** The provisions of this Clause shall **survive termination or expiry** of this MoU.

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## 15. DISPUTE RESOLUTION

a. **Amicable Settlement:** In the event of any dispute, difference, or claim arising out of or in connection with this MoU, the Parties shall first attempt to resolve the matter **amicably through mutual discussions.**

b. **Governing Law:** This MoU shall be governed by and construed in accordance with the **laws of India.**

c. **Jurisdiction:** Any dispute which cannot be resolved amicably shall be subject to the **exclusive jurisdiction of the courts located in Maharashtra,** India.

d. **No Waiver:** Failure by either Party to enforce any provision of this MoU shall **not constitute a waiver** of such provision or any other rights under this MoU.

## 16. GENERAL TERMS

a. **Amendments:** Any amendment, modification, or supplement to this MoU shall be made **in writing** and executed by **authorized representatives of both Parties**. No oral modification or representation shall have any effect.

b. **Assignment:** Neither Party shall **assign, transfer, or otherwise delegate** its rights or obligations under this MoU to any third party without the **prior written consent** of the other Party. Any purported assignment without such consent shall be **void and unenforceable.**

c. **Severability:** If any provision of this MoU is held to be invalid, illegal, or unenforceable under applicable law, the remaining provisions shall continue in full force and effect.

d. **Entire Agreement:** This MoU constitutes the **entire agreement** between the Parties with respect to the subject matter herein and supersedes all prior discussions, negotiations, understandings, or agreements, whether written or oral.

e. **Counterparts:** This MoU may be executed in one or more counterparts, each of which shall be deemed an original, but all of which together shall constitute **one and the same instrument.**

## SIGNATORIES

This MoU is executed and signed by the authorized representatives of the Parties on the respective dates below:

**For PHN Technology Pvt. Ltd.**
Name: Nikhil Bhagat
Designation: VP Business Development

Signature: _____

Date: _____

Seal: _____

**For The Institution**

Name: Dr. Rajkumar M. Kolhe
Designation: Founder President

Signature: _____
Date: 27/03/2026

Seal: Dr. Rajkumar M. Kolhe
Founder President
JAHNVIS MULTI FOUNDATION
Dombivli (West), Thane.

**Witnesses:**

1. Name: Dr. R. N. Nadar
   Address: Principal, VPMC
   Signature: _____
2. Name: Kumar Baburao Dupate
   Address: Manager
   Signature: _____

**ANNEXURES**

The following annexures form an integral part of this MoU and are **retained exactly as provided in the original content:**

- **Annexure A:** Details of Technology Laboratory Setup, Hardware & Infrastructure
- **Annexure B:** Course Curriculum and Certification Programs
- **Annexure C:** Lab Operating SOP and Guidelines

All annexures shall have the **same legal force and effect** as the main body of this MoU.

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**ANNEXURE – A**

**Technology Lab Infrastructure & Equipment List.**

The following equipment and materials shall be provided and installed by **PHN Technology Pvt. Ltd.** at the Institution premises:

| Sr No | Domain | Material | Specifications | Qty |
|---|---|---|---|---|
| 1 | Robotics | AI enabled Bionic Hand kit | **Controller :** Arduino Nano (ATmega328P)<br>**Power Supply:** 9V 2A Adapter<br>**Voltage Regulation:** Onboard Nano Expansion Board with integrated 9V to 5V regulator<br>**Connectivity :** Multiple servo motor channels and a dedicated port for an ultrasonic sensor<br>**Structure:** 3D printed components forming the bionic hand structure | 4 |
| 2 | IoT + AI | AI IoT clock bot kit | **Controller:** ESP32 Dev Module with dual-core, 240 MHz, 520 KB SRAM, Wi-Fi + BLE<br>**Power Supply:** 9V 2Amp DC input (regulated to 5V via onboard buck converter)<br>**Display Unit:** P10 LED Matrix (16x32 or 16x64, single-color Red, HUB75 interface)<br>Supports air quality, temperature, humidity, and time display using sensor modules | 4 |
| 3 | Automation | Advance sensor kit | The Advanced Sensor Kit includes a wide range of digital and analog sensors<br>Including **MPU6050, soil moisture sensor, BH1750, PIR sensor, RC522 RFID, MAX30102, and INA219.** It's perfect for IoT, automation, and sensor-based projects | 6 |
| 4 | IoT + Robotics | IoT dev kit | **Controller:** Compatible with ESP32 (ESP-WROOM-32)<br>**Power Input:** 9V 2A DC via barrel jack or screw terminal (up to 3A)<br>**Power Output:** Dedicated 5V and 3.3V ports for external modules<br>**Connectivity:** Labeled I2C port with SDA & SCL pins<br>**Motor Control:** Integrated L293D dual H-bridge for DC/stepper motors and DRV8833 driver with built-in protections<br>**Indicators:** Onboard SMD LEDs for power status<br>**IDE Compatibility:** Fully compatible with Arduino IDE and similar platforms | 12 |
| 5 | Robotics | Robotics Starter kit | **Controller:** Arduino Nano (ATmega328P, 16 MHz)<br>**Power Supply:** Rechargeable lithium battery with onboard charging<br>**Motion System:** Servo-based pan-tilt and balancing platform<br>**Drawing Mechanism:** Pen holder for basic shape drawing | 6 |
| 6 | Hobysist Kit | Servo Motors(MG 90), 180 Degree | Servo Motors(MG 90), 180 Degree | 5 |
| | | HC-SR04 Ultrasonic Sensor with JST XH-A connector | HC-SR04 Ultrasonic Sensor with JST XH-A connector | 5 |
| | | Buzzer Module(5V) with JST XH-A connector | Buzzer Module(5V) with JST XH-A connector | 5 |
| | | Fevikwik | Fevikwik | 5 |
| | | BreadBoard - 170 points | BreadBoard - 170 points | 10 |

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| | | |
|---|---|---|
| Jumper - F-F - 30cm (Consider Single Unit ) | Jumper - F-F - 30cm | 50 |
| Jumper - M-F - 30cm (Consider Single Unit ) | Jumper - M-F - 30cm | 50 |
| Jumper - M-M - 30cm (Consider Single Unit) | Jumper - M-M - 30cm | 50 |
| Lock Nuts - M3 - Hex | Lock Nuts - M3 - Hex | 20 |
| SMD RGB Module with JST XH-A connector | SMD RGB Module with JST XH-A connector | 8 |
| Standoffs - M4x30 - F-F - Plastic | Standoffs - M4x30 - F-F - Plastic | 10 |
| Bolts - M3X10 - Allen | Bolts - M3X10 - Allen | 10 |
| Bolts - M2X15 - Slotted | Bolts - M2X15 - Slotted | 10 |
| Allen Key Set | Allen Key Set | 6 |
| Hexagonal Mini Cross Wrench Sleeve Nut Tool | Hexagonal Mini Cross Wrench Sleeve Nut Tool | 6 |
| BO Motor with 30cm wire + JST XH-A connector | BO Motor with 30cm wire + JST XH-A connector | 5 |
| OLED Display with JST XH-A connector 1.3 inch | OLED Display with JST XH-A connector 1.3 inch | 3 |
| Tactile Switch Module | Tactile Switch Module | 3 |
| 26AWG Pure Copper 40pin Dupont Wire Flexible Rainbow Color Flat Ribbon Cable | 26AWG Pure Copper 40pin Dupont Wire Flexible Rainbow Color Flat Ribbon Cable – 1 Meter | 2 |
| IR Sensor Module | Detection distance: 2 ~ 30cm<br>Detection angle: 35 ° Comparator chip: LM393 | 8 |
| Motor Driver L298N Module | Double H bridge Drive Chip: L298N.<br>Operating Voltage(VDC): 5~35 Peak Current (A): 2<br>Continuous Current (A): 0-36mA No. of Channels: 2 | 3 |
| 100R Resistor | 1/4 Watt, CFR | 50 |
| 330R Resistor | 1/4 Watt, CFR | 50 |
| 1kΩ Resistor | 1/4 Watt, CFR | 50 |
| 4k7Ω Resistor | 1/4 Watt, CFR | 50 |
| 1 ohm | 1/4 Watt, CFR | 50 |
| 4.7 ohm | 1/4 Watt, CFR | 50 |
| 10 ohm | 1/4 Watt, CFR | 50 |
| 180 ohm | 1/4 Watt, CFR | 50 |
| 220 ohm | 1/4 Watt, CFR | 50 |
| 270 ohm | 1/4 Watt, CFR | 50 |
| 470 ohm | 1/4 Watt, CFR | 50 |

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| | | |
|---|---|---|
| 560 ohm | 1/4 Watt, CFR | 50 |
| 680 ohm | 1/4 Watt, CFR | 50 |
| 820 ohm | 1/4 Watt, CFR | 50 |
| 2k2 ohm | 1/4 Watt, CFR | 50 |
| 3k3 ohm | 1/4 Watt, CFR | 50 |
| 100k ohm | 1/4 Watt, CFR | 50 |
| 820k ohm | 1/4 Watt, CFR | 50 |
| 1M ohm | 1/4 Watt, CFR | 50 |
| 10kΩ Resistor | 1/4 Watt, CFR | 50 |
| 1N4007 Diode | Maximum Repetitive Peak Reverse Voltage (VRRM): 1000V.<br>Maximum RMS voltage (VRMS): 700V.<br>Maximum Average Forward Rectified Current(IF(AV)): 1A. | 50 |
| 1N4148 1W Zener Diode | Maximum Repetitive Peak Reverse Voltage (VRRM): 100V.<br>Maximum RMS voltage (VRMS): 75V.<br>Maximum Average Forward Rectified Current(IF(AV)): 0.15A. | 50 |
| BC547 Transistors | Product: BC547 NPN DIP Transistor<br>Collector Current (DC) (A): 100<br>Junction Temperature (°C): 150<br>Collector-Base Voltage (Vcb) (V): 50<br>Collector-Emitter Voltage (Vce) (V): 45 | 50 |
| Potentiometers 10 K_knob Module | Resistance: 10k Ω.<br>Tolerance: 20%.<br>Shaft Length: 15mm. | 10 |
| Red LED | LED Model: 333-2SUGC/S400-A5-L-EVERLIGHT<br>Color: Emerald green<br>Package Type: 5mm | 50 |
| Blue LED | Light Colour : Blue<br>LED Type : 5mm | 50 |
| Yellow LED | Size: 5mm<br>Color: Yellow<br>Head Shape: Round | 50 |
| Green LED | Color:<br>Yellowish Green<br>Forward Voltage (V)2<br>Dimensions 5 × 2 × 1 cm | 50 |
| 5 x 7 cm Zero PCB Board Single-Sided | Dimension: 5 x 7 cm Type: Single-Sided<br>Hole: 24 x 18(Row x column) Base Material: FR4<br>Copper Thickness: 1-4 OZ Board Thickness: 1.6 | 20 |
| Soldering Iron | Brand: Noel Light Weight and Offers good grip<br>General purpose for all electronic applications. Advanced Heating element<br>High-Quality | 2 |
| Solder Metal 50gm | Wire Diameter: 1.0mm<br>60/40 Tin/Lead Solder Wire Flux: 2%<br>SWG: 20/22 Net Weight: 50g | 4 |
| Solder Stand | tem dimensions L x W x H 10 x 10 x 10 Centimeters<br>Base Type Pedestal | 2 |
| Multimeter | Digital Multimeter Small Yellow Color LCD AC DC Measuring Voltage<br>Current, Probe Length: 60 CM (2 feet approx.) | 4 |
| Wire Stripper | Size (mm): 130 mm<br>Dimension (LxWxH):130 x 90 x8<br>Weight (g): 69 | 2 |
| Wire Cutter | Length (mm): 120 Width (mm): 60<br>Height (mm): 10.5 Weight (g): 50 | 2 |








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|---|---|---|---|---|
| | | Screwdrivers (small set) | Width (mm): 51 (Body Diameter) Height (mm): 100 Weight (g): 118 | 3 |
| | | 40 Watt Hot Melt Glue Gun with On/Off Switch + 5 Glue sticks | Voltage: 110-220V Power consumption: 40W Melt Temperature(°C): 190 (± 10) Use Glue Stick Size: 11MM | 3 |
| | | Tweezers | Tweezer ESD-10 | 2 |
| | | Foam Double-sided tape | Colour:White Material:Foam Size: 3/4" (18mm) X 5 Mtr | 3 |
| | | Insulation tape | Material Polyvinyl Chloride | 3 |
| | | Cutting mat A3 | lexible Cutting Mat, A3 Size (17 X 11 inch), Professional Self-Healing, 5 Layered, Durable Non-Slip PVC, Double Sided with Marked Pattern and Grids (Green) Polyvinyl Chloride | 2 |
| | | Magnifying LAMP With LED | BalRama 10x Gooseneck Magnifying Lamp Desk Table Study Lamp Reading Tabletop LED Light Fisheye Zoom Lens | 2 |
| 7 | Prototyping | Anycubic Kobra 2 Neo 3D Printer | Brand: Anycubic 5X Fast 3D Printer: Max Speed 250mm/s 12.1L Print Size: 250*220*220mm Automatic Leveling: Upgraded Printing Volume: 3.2gal./12.1L Machine Weight: 7.3 Kg | 1 |
| | | Blue filament | Material: PLA Filament Diameter: 1.75mm Brand Name: eSUN Net weight: 1Kg Elongation at Break (%): 8 Flexural Modulus (MPa):3600 | 2 |
| 8 | Mechanical kit | Drill Machine | 680W Impact Drill (ID6808) : 220-240V~50/60Hz,13mm key chuck | 1 |
| | | Wood Drill bits | Wood Drill bits 4,5,6,8mm | 1 |
| | | Twist Drill bits | Twist Drill bits 2,3,4,5,6mm | 1 |
| | | Masonry Drill bits | Masonry Drill bits 4,5,6,8,10mm | 1 |
| | | Hammer | 8Oz Claw Hammer | 1 |
| | | Measurment Tape | 3M Steel measuring tape | 1 |
| | | Plyer | 7" Combination Pliers & 1 Pcs 6" Adjustable Wrench | 1 |
| | | Wrench | Adjustable Wrench | 1 |
| 9 | Trainer Support kit | Multimeter | Digital Multimeter Small Yellow Color LCD AC DC Measuring Voltage Current, Probe Length: 60 CM (2 feet approx.) | 1 |
| | | Wire Stripper | Size (mm): 130 mm Dimension (LxWxH):130 x 90 x8 Weight (g): 69 | 1 |
| | | Wire Cutter | Length (mm): 120 Width (mm): 60 Height (mm): 10.5 Weight (g): 50 | 1 |
| | | Screwdrivers (small set) | Width (mm): 51 (Body Diameter) Height (mm): 100 Weight (g): 118 | 1 |
| | | Blade cutter | Auto-locking blade Large button for easy extension & retraction of blade Blade storage tray Blade size- 100x18mm | 1 |
| 10 | Safety kit | First Aid Kit | First Aid Kit | 1 |
| | | Safety Goggles | Safety Goggles | 10 |
| | | Safety Gloves | Safety Gloves | 10 |
| 11 | Product development | CNC Plotter | **Controller:** Arduino Uno (GRBL firmware) **Input Interface:** G-code via USB **Software Support:** Inkscape (G-code extension) / Universal G-code Sender **Power Supply:** 9V DC, 2A–5A **Working Area:** A4 Size (210 mm × 297 mm) **Axes:** 2-Axis (X and Y) **Drive System:** NEMA 17 Stepper Motors **Motor Drivers:** A4988 Stepper Drivers Project converts digital designs into precise pen plots | 1 |

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| 12 | Product development | EVM | **Controller:** Arduino Nano<br>**Display Interface:** 20x4 I2C LCD (HMI)<br>**PCB:** Custom PCB with onboard voltage regulation<br>**Connectivity:** Dedicated ports for I2C and RFID module<br>**Access Module:** RFID reader for secure user authentication<br>**Alert System:** Buzzer for status indication and alerts<br>**Power Supply:** 9V DC (2A)<br>Secure RFID-based voting, real-time LCD feedback, buzzer alerts for actions, and tamper-resistant operation. | 1 |
| 13 | Mechanical | 3 Speed Gearbox | Manual Gear Shifter Mechanism<br>**Main Components:** 3D Printed Gearbox Housing and Gears<br>**Motor:** 60 RPM BO Motor (DC Gear Motor)<br>**Gear System:** 3-Speed Manual Transmission<br>**Speed Control:** Mechanical gear shifting for RPM variation<br>**Power Supply:** Rechargeable Battery Pack (6V–12V DC)<br>**Drive Output:** Variable RPM output to wheel based on gear<br>**Material:** PLA/ABS for 3D printed parts | 2 |
| 14 | Drone | Drone Mechanism Working Trainer Kit | **Motors:** 920KV BLDC Motors with 1045-size propellers<br>**Flight Controller:** Radiolink Crossflight for stable flight dynamics<br>**Remote Control:** FS-CT6B Transmitter & Receiver<br>**Power Module:** APM module for voltage & current monitoring<br>**Battery:** 11.7V LiPo with LiPo balance charger<br>**Sensors:** MPU6050 (vibration/orientation) and Load Cell (thrust measurement)<br>**Display:** Real-time dashboard for voltage, current, and sensor data<br>Demonstrates real-time drone thrust, vibration, and orientation analysis for hands-on flight training and STEM learning. | 1 |
| 15 | AI ML | AI-SWAM Robotics Setup | **Vision System:** Wide-angle camera (120° FOV) with OpenCV-based object detection<br>**Arm Mechanism:** Dual 180° servo arms (2 DOF) for smooth object interaction<br>**Targeting System:** Dual laser modules for precise object highlighting<br>**Lighting System:** RGB light-based cabins for environmental simulation<br>**Control:** Custom PCB with voltage regulators, switches, and rotary knobs<br>**Power Supply:** SMPS module for stable and safe operation<br>Performs real-time object detection, tracking, and interaction with dynamic lighting and laser targeting for advanced AI simulation. | 1 |
| 16 | AI ML | AI Voice And Vision KIT | **Processor:** Raspberry Pi 4B for real-time AI processing<br>**Camera:** High-resolution module for computer vision tasks<br>**Audio:** Integrated speaker for voice interaction and output<br>**AI Capabilities:** Supports object recognition, facial detection, and voice commands<br>**Connectivity:** Includes HDMI cable for display interface<br>**Applications:** Ideal for AI automation, vision systems, and voice-controlled IoT<br>Executes real-time image recognition and voice commands for smart AI-powered interaction and automation. | 1 |

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| 17 | Automation | Multi sensor Calibration And Testing KIT | **Controller:** Arduino Mega 2560 (ATmega2560, 16 MHz)<br>**Power Input:** 9V @ 2A DC via barrel jack<br>**Voltage Rails:** 9V, 5V (regulated), and 3.3V<br>**Display (HMI):** 20x4 I2C LCD Character Display<br>**User Input:** Tactile buttons – UP / DOWN / SELECT / BACK<br>**PCB:** Dual-layer FR4 with silk-screened labels and 2.54mm headers<br>Provides a complete LCD-based user interface with menu navigation and multi-voltage support for embedded applications. | 1 |
| 18 | Applied learning - AI + Robotics | Advance Robotic hand | **Processor:** Raspberry Pi 4B for AI and vision processing<br>**Camera:** HD camera for real-time image recognition<br>**AI Capabilities:** Supports color detection and face recognition via OpenCV<br>**Machine Learning:** Compatible with TensorFlow + Keras for training custom models<br>**Control Interface:** Mobile app for wireless operation and interaction<br>Performs real-time AI-based object recognition and responds through wireless control using a mobile app. | 1 |
| 19 | Applied learning - Robotics | Self Balancing robot | **Working Voltage & Current:** 9V DC, 2A<br>**Motor Type:** Precision 9V DC motors<br>**Position Detection:** MPU-6050 (Gyroscope + Accelerometer)<br>**Control Mode:** HC-06 Bluetooth wireless communication<br>**Operation:** Controlled via smartphone using Bluetooth<br>Automatically maintains balance and responds to smartphone-based Bluetooth commands in real time. | 1 |
| 20 | Applied learning - AI + Robotics | Advance DOF Robotic Arm | **Dimensions:** 293 × 153 × 426 mm<br>**Weight:** 1.28 kg<br>**Material:** Full aluminum alloy chassis, sandblasted and anodized<br>**Degrees of Freedom:** 5 DOF + gripper<br>**Power Supply:** 7.5V 6A DC adapter<br>**Controller:** ESP32 + MM32F103CBT6 (dual-core architecture)<br>**Programming Support:** Scratch, Python, Arduino<br>**Servo Motors:** HTS-16L / HX-06L / LX-15D / LX-225 (smart serial bus servos)<br>**Control Modes:** Mobile app (iOS/Android), PS2 controller, PC control<br>Performs precise multi-axis movements and gripping actions with mobile, PC, and controller-based operation | 1 |
| 21 | Applied learning - AI + Robotics | Shwana | **Controller:** ESP32<br>**Servos:** 8 high-speed coreless servo motors<br>**Expansion Ports:** Compatible with ultrasonic, IMU, and other sensors<br>**Technologies:** Inverse kinematics for agile and precise movement<br>**Programming Support:** Python, Scratch, and Arduino<br>**Applications:** Ideal for robotics research, AI motion simulation, and education<br>Executes precise, human-like movements using inverse kinematics and sensor-driven control. | 1 |
| 22 | MISC. | Wifi Camera | 1080P Wifi 360Degree camera | .1 |

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**ANNEXURE – B**

**List of Courses & Programs**

PHN Technology Pvt. Ltd. shall conduct the following indicative courses at the Technology Lab:

The following minimal and student-friendly fee structure shall be applicable for courses and programs conducted by PHN Technology Pvt. Ltd. in the Technology Lab.

**A. Kit Based Camp/ Courses: These are Programs with Take away kits.**

| Kit Name | 1 Month Program Price, on given take away Kit | Activities | Technological Domain |
|---|---|---|---|
| Football Drone Learning Kit | ₹17,560/- per student | Automatic Temperature-Controlled Fan | Automation Embedded Systems Drone technology |
| | | Automatic Night Lamp (LDR-Based) | |
| | | Intruder / Obstacle Detection Alarm | |
| | | Light-Activated Buzzer (Light Alarm) | |
| | | Touch-Based Conductor–Insulator Detector | |
| | | Air-Drag Propeller Boat | |
| | | Automatic Object-Triggered LED Indicator (IR Sensor) | |
| Wooden Gearbox & Digital Control Systems Kit | ₹10,900/- per student | **Activities** | Mechatronics & Mechanical Systems Embedded Systems Automation |
| | | Arduino LED Blink & Control Program | |
| | | IR-Based Object Detection Indicator (Arduino) | |
| | | IR-Based Counter (Serial Monitor Output) | |
| | | Arduino Switch-Controlled LED System | |
| | | IR Sensor Data Monitor (Serial Output) | |
| | | Arduino Motor ON/OFF Control Logic | |
| | | IR-Based Motor Trigger Logic | |
| Wooden Solar Powered Car & Energy Learning Kit | ₹6,125/- per student | **Activities** | Renewable Energy & Sustainable Systems |
| | | Solar Powered LED Light | |
| | | Solar Powered Buzzer Alarm | |
| | | Solar Powered Dual-Shaft Motor Demo | |

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| | | Battery Powered Motor Demonstration Model | |
| Wooden Mechanical Robot & Motion Learning Kit | ₹3,400/- per student | **Activities** | Mechatronics & Mechanical Systems |
| | | Two-Button Forward–Reverse MDF Car | |
| | | Magnetic Object Carrier Car | |
| | | Magnet Powered Car | |

**B. Short Term Certification Courses (30–40 Hours)**

| A. Certification Courses (30–40 Hours) | | |
|---|---|---|
| **Domain** | **Course Duration** | **Fee per Student** |
| AI /ML | 30 Hours | ₹ 1500 |
| Python Programming for AI | 40 Hours | ₹ 1500 |
| Data Analytics | 30 Hours | ₹ 1500 |
| IoT Fundamentals | 30 Hours | ₹ 1500 |
| Robotics Basics | 30 Hours | ₹ 1500 |
| Embedded Systems Basics | 40 Hours | ₹ 2000 |

**C. Advanced Domain Courses (60–80 Hours)**

| B. Advanced Domain Courses (60–80 Hours) | | |
|---|---|---|
| **Domain** | **Duration** | **Fee per Student** |
| Machine Learning with Projects | 80 Hours | ₹ 5,500 |
| Industrial IoT | 60 Hours | ₹ 5,000 |
| Advanced Robotics | 80 Hours | ₹ 6,000 |
| Drone Technology | 60 Hours | ₹ 5,500 |

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**D. Project-Based Programs (Capstone Model)**

**C. Project-Based Programs (Capstone Model)**

| Program Type | Duration | Fee |
|---|---|---|
| Mini Project Development | 4 Weeks | ₹ 3,000 |
| Major Project Development | 8 Weeks | ₹ 5,000 |

## ANNEXURE – C

## Operational Guidelines & Standard Operating Procedures (SOP)

### 1. Lab Timings

- Lab shall operate as per mutually agreed schedule.
- Batch timings shall be decided by PHN in coordination with the Institution.

### 2. Student Enrolments Process

- PHN shall conduct orientation sessions.
- Interested students shall register directly with PHN.
- All fees shall be paid to PHN through authorized channels only.

### 3. Access to Infrastructure

- Institution shall provide uninterrupted access to the lab.
- Electricity, internet, and basic facilities shall be ensured by the Institution.

### 4. Maintenance Responsibility

- Routine maintenance: PHN
- Security and safety: Institution

### 5. Promotion & Coordination

The Institution shall support PHN with:

- Student communication
- Notices and circulars
- Classroom announcements
- Permission for seminars and workshops

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