TECHNO LAB INITIATIVE AWARD

Let's talk

PHN Robotics Learning program provides an Affordable and innovative solution for **DIGITAL LEARNING,** empowering students to compete globally and shaping the future of education.

SHRI. PRAKASH JAVADEKAR
Minister of Human Resource Development 2016-19

From a personal journey to a transformative movement, this initiative strives to provide education and make a positive impact on lives by addressing **REAL-TIME CHALLENGES** and offering solutions.

MR. PRADIP NARAYANKAR
Founder & Director

PHN's **AFFORDABLE** Robotic Lab Setup enables early education, empowering individuals and Fostering a technologically advanced nation through accessible and optimal learning environments.

MR. BOMAN IRANI
ACTOR

PHN tackles the issue of unaffordable education through their Affordable Robotic Lab Setup, fostering **EASY ACCESS** and empowerment for optimal learning, ultimately creating a technologically advanced nation.

MRS. GENELIA DESHMUKH
ACTRESS

Appreciates the integration of technology and education, foresees widespread support, & envisions **GLOBAL GROWTH** & success for the organization, benefiting both children & parents.

MR. ANKUSH CHAUDHARY
ACTOR

Mr. Pradip's journey to organizing a significant event highlights the importance of personal needs driving **HISTORY-MAKING INITIATIVES** & commends PHN Technology for making education accessible & affordable.

MISS. SONALEE KULKARNI
ACTRESS

PHN
TECHNO LAB

> The technology learning lab provides an engaging coding and robotics program that cultivates problem-solving skills and **CRITICAL THINKING** in students through a hands-on approach facilitated by experienced instructors.

MR. SANDEEP MOON
Strategy Consultant @ YCP Auctus
(Alumni IIM Calcutta and IIT Madras)

> PHN Techno Lab's Robotics Lab provides a safe, affordable, and visually appealing environment with **CUTTING-EDGE EQUIPMENT**, enabling students to explore robotics and technical learning confidently.

MR. SACHIN PUNDHKAR
Technical Engineer @ SAMSUNG
(Alumni VJTI Mumbai)

> PHN Techno Lab's modern setup, informative posters, and beginner-friendly materials offer a seamless, excellent, and **SAFE LEARNING EXPERIENCE**, making it an ideal choice for students.

MR. MANMOHAN MEENA
Chief Engineer @ SAMSUNG Electronics
(Alumni IIT Delhi)

> With a **FULLY EQUIPPED LAB**, including robotic kits and sensor modules, PHN Techno Lab provides a relatable and comprehensive learning experience that enhances students' understanding of the subject matter.

PROF. K N TAYDE
Professor, Govt College of Engg. Amravati
(Ph.D , Pune university)

> PHN Techno Lab's revolutionary facility, equipped with robotics equipment and **WELL-DESIGNED PROJECTS**, offers an exceptional learning environment that provides valuable knowledge and hands-on experience in automation.

DR. B S YELURE
Professor, Govt College of Engg. Karad
(Ph.D WCE, Sangli)

> PHN Techno Lab excels in providing Affordable Coding Classes and MS Office Tools education with expert trainers, ensuring students stay ahead of the curve with an **UP-TO-DATE SYLLABUS.**

DR. SAMEER GAJGHATE
Professor, G.H. Raisoni College of Engg. & Mgmt. Pune
(Ph.D. NIT Agartala)

> PHN Techno-Lab: Exceptional equipment, reliable and durable. Top choice for education. Safe, affordable, and **FOSTERS INNOVATION**. Modern, comfortable, and informative.

MR. AMAR BELKHEDE
Ph. D @IIT Mumbai

> PHN Techno Lab offers affordable **CODING CLASSES** and MS Office Tools education with Expert Trainers, Providing comprehensive guidance and innovative solutions for your educational needs.

MR. SUSHANT MOON
Data Scientist || @Amazon Internet Services
(Alumni ISI Kolkata and IIT Guwahati)

> Attending PHN's program was an exciting and impressive experience, with affordable pricing, **DYNAMIC LEADERSHIP**, and remarkable growth since 2015.

MRS. HEMA KARTHIK
Delhi Public School, Navi Mumbai

> PHN's empowering and inclusive platform resonates with students, fostering talent retention and benefiting a diverse range of learners through **AFFORDABILITY AND ACCESSIBILITY**.

MRS. ZEENAT SYED
Podar International School, Andheri

WED, JUL 05, 2023 | UPDATED 12:27 IST

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PHN Technology Pvt. Ltd. introduced its PHN Techno lab, Affordable Robotics Education at the Taj Mahal Palace on June 25th

PHN Technology Pvt. Ltd. introduced its PHN Techno lab, Affordable Robotics Education at the Taj Mahal Palace on June 25th

ANI | Updated: Jul 04, 2023 18:20 IST

PNN

Mumbai (Maharashtra) [India], July 4: PHN Techno Lab, a ground-breaking initiative in technology education, was launched at the Taj Mahal Palace in Mumbai. It aims to revolutionize student engagement with technology by providing an affordable and well-designed Robotics lab setup, coupled with expert training. This initiative empowers young minds in India, igniting their curiosity and equipping them with essential skills for future competition and technology.

The New India Daily

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MISCELLANEOUS

Former Minister Shri Prakash Javadekar Praises PHN Techno Lab's Revolutionary Approach to Education

In a resounding endorsement of PHN Techno Lab's ground-breaking initiative, the esteemed Member of Rajya Sabha and Former HRD and IB Minister, Shri Prakash Javadekar Ji, highlighted the remarkable benefits that schools and students are set to gain from this transformative platform. With its state-of-the-art robotics lab setup and comprehensive training programs, PHN Techno Lab is poised to revolutionize education by empowering schools and students with essential skills for the future.

DH DECCAN HERALD

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Brandspot / Sponsored / Transforming Education with PHN Techno Lab: Mr. Pradip Narayankar's, the Founder and Director of PHN Technology Pvt. Ltd. Inspiring Vision

Transforming Education with PHN Techno Lab: Mr. Pradip Narayankar's, the Founder and Director of PHN Technology Pvt. Ltd. Inspiring Vision

Mumbai, 25th June 2023: "Education is the key that unlocks the door to a brighter future," says Mr. Pradip Narayankar, the visionary leader behind PHN Techno Lab. With unwavering determination, Mr. Narayankar has taken a transformative step in the realm of education, introducing a revolutionary platform that is set to redefine robotics education and empower the next generation of innovators. PHN Techno Lab, with its cutting-edge robotics lab setup and comprehensive training programs, is poised to ignite curiosity, foster creativity, and equip students with the essential skills needed to thrive in a tech-driven world.

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Empowering Minds, Enriching Futures: PHN Techno Lab's Affordable Tech Education for All

Brand Stories
Published on Jul 07, 2023 06:45 PM IST

Under the visionary leadership of Mr. Pradip Narayankar, PHN Techno Lab's commitment to providing coding and technology training, its dedication to hands-on learning, and its unwavering focus on student safety create an educational experience like no other. By instilling essential skills and knowledge, empowering students to apply their learning practices, and ensuring their well-being, PHN Techno Lab paves the way for a promising future in the world of technology.

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Enquiry Link:
https://www.phntechnolab.com/enquiry

Mid-day Gujarati Inquilab

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Lights, Robots, Action: Bollywood Stars Embrace PHN Techno Lab's Affordable Practical Tech Education

Genelia Deshmukh, not only an accomplished actress but also a parent, shared her perspective on the initiative. She expressed her joy and satisfaction in witnessing the transformational power of PHN Techno Lab. As she aptly put it, robotics is undeniably the future, and this ground-breaking lab creates opportunities for our young minds to explore, innovate, and shape the future.

International Glory Awards 2023

Most Innovative Robotics Lab Of 2023

Maharashtra Udyog Bhushan Puraskar 2023

Prajakta Mali
Actress

Pradip Narayankar
Director

Leading Robotics And AI Education Provider Company

PHN TECHNO LAB
At Valley View School,
Kondhwa, Pune

Syllabus By: IIT Alumni & Subject Matter Experts
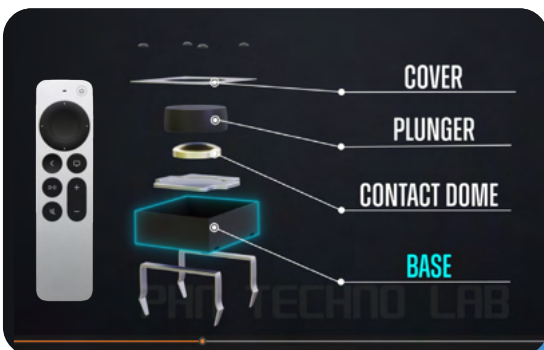
Microsoft Tools Training & Certifications

AI/ML Learning

Coding Classes

STEM and Robotics Lab with AMC

Dedicated Expert Trainer in Campus

2D/ 3D Animated Video with LMS

Daily Essential Topics

SYLLABUS

GRADE 1

Chapter 1: Safety - Zebra Crossings

1.1 What is Traffic Signals
1.2 What is Road Safety
1.3 Introduction to Zebra Crossings
1.4 Recognising Zebra Crossing
1.5 Importance of Zebra Crossings
1.6 Rules for Using Zebra Crossings

Chapter 2: Geometric Shapes

2.1 Introduction to Geometric Shapes
2.2 Play with Circle
2.3 Learning Rectangle
2.4 Robotic Triangle
2.5 Real-Life Examples

Chapter 3: Machine Parts of a Computer

3.1 Hello, Computers!
3.2 My Magical Keyboard
3.3 Funny Friends: Mouse/Touchpad
3.4 Computer's Super Brain
3.5 Wow, the Big Screen!

Chapter 4: Introduction to Robotic Body Parts

4.1 What is a Robot
4.2 Comparison between Humans & Robots
4.3 How Robots Help with Tasks
4.4 My Robo-Buddy Drawing

Chapter 5: A Function of Robots

5.1 How Robots Move
5.2 How Robots Talk
5.3 Fun with Robot Functions
5.4 Robots in our Daily Lives
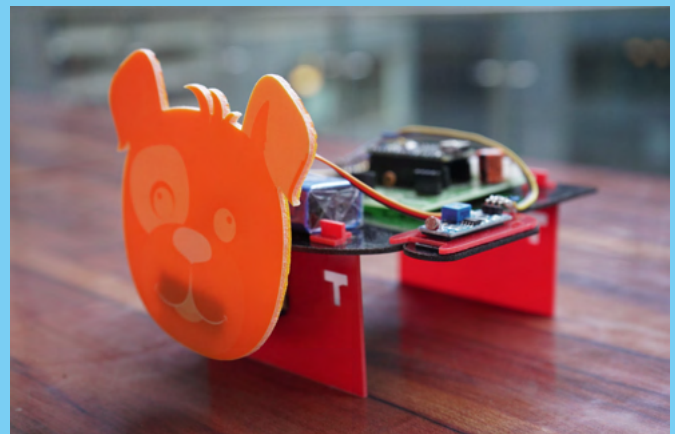
PROJECTS

Project 1: Number Counting Machine

6.1 Introduction to Numbers
6.2 Woah! Big Buttons
6.3 The Screen Changes Numbers
6.4 The Hero behind it: Arduino Board

Project 2 : Head Moving Dog

7.1 Introduction to the Head Moving Dog
7.2 Materials Required for the Project
7.3 Step-by-Step Assembly of Head Moving Dog
7.4 Working of Head Moving Dog

Disclaimer: The syllabus is subject to periodic customization to ensure its alignment with the most up-to-date technological developments.

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SYLLABUS

GRADE 2

Chapter 1: Safety Kits Knowledge

1.1 What is First Aid?
1.2 Importance of First Aid
1.3 First Aid Objectives and Goals
1.4 Essential Items in a First Aid Box

Chapter 2: Pegboard (Tool Kit)

2.1 Introduction to Peg Boards as Organizational Tools
2.2 Structure and Components of a Peg Board
2.3 Advantages of Using Peg Boards for Tool Organization
2.4 Application of Pegboard.

Chapter 3: Real-Time Measurement Tools

3.1 What is Measurement?
3.2 Tools for Measurement
3.3 Real-Time Measurement
3.4 Different Real-Time Measurement Tools

Chapter 4: Digital Clock - Time Zone

4.1 What is a Clock?
4.2 Introduction to Digital Clocks
4.3 Components and Functionality of a Digital Clock
4.4 Concept of AM-PM

Chapter 5: Seasons

5.1 What are Seasons?
5.2 Different Types of Season:Summer, Winter, Rainy
5.3 The Amazing Process Behind Season

Chapter 6: Introduction to Robotic Parts

6.1 Introduction to Batteries
6.2 Fun with Cameras
6.3 Amazing Displays
6.4 Let's Play with Lights: LED
6.5 Exciting Motors
6.6 Musical Speakers
6.7 Wheels on the Go

Chapter 7: Introduction to Sensors - Basic Level

7.1 What are Sensors?
7.2 How do Sensors Work?
7.3 Types of Sensors
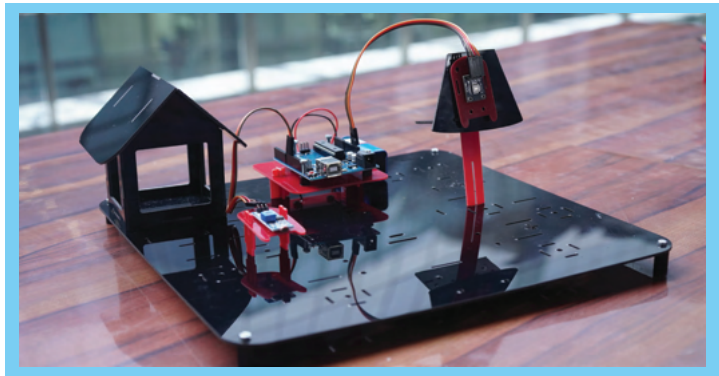
PROJECTS

Project 1: Garbage Separation with Robotic Arm

8.1 What is Waste?
8.2 Waste Management and Its Importance
8.3 Robotic Arms and its Role in Garbage Seperation
8.4 Process of Garbage Seperation

Project 2: Auto Switchable Lamp Project

9.1 Introduction to Auto Switchable Lamp
9.2 Objectives of the Auto Switchable Lamp Project
9.3 Benefits of Auto Switchable Lamps
9.4 Importance of Energy Efficiency and Automation in Lighting

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SYLLABUS

GRADE 3

Chapter 1: Educational Tools and Concepts

1.1 Introduction to Measurement: Length, Width, and Height
1.2 Building Blocks (Legos)
1.3 What is an Angle?
1.4 Angle Concepts Using Servo Motor

Chapter 2: Air, Water, Fire & Electricity

2.1 What is Air Scientifically?
2.2 What is Water Scientifically?
2.3 What is Fire?
2.4 What is Electricity?

Chapter 3: Human and Robot Comparison

3.1 What are Robots?
3.2 What are Humans?
3.3 Similarities and Differences Between Humans and Robots
3.4 Roles of Humans and Robots in Society
3.5 History of Both

Chapter 4: Sensing Technologies in Robotics

4.1 Introduction to Sensors
4.2 Sensory Organs of Humans vs. Sensory Organs of Robots
4.3 Robot Eyes and Vision Sensors
4.4 Robot Ears and Sound Sensors
4.5 Robot Nose and Smell Sensors

PROJECTS

Project 1: Head Moving Dog

5.1 Introduction to Robotics and Simple Machines
5.2 Components of the Head Moving Dog
5.3 Building and Assembling the Head Moving Dog

Project 2: Fire & Smoke Detection

6.1 The Science of Fire
6.2 Understanding Fire Safety
6.3 Fire & Smoke Detection Devices
6.4 Creating a Fire Safety Plan
6.5 Preventing Fires and Staying Safe

Project 3: Smart Fan

7.1 What is a Smart Fan?
7.2 Understanding the Concept of Smart Homes
7.3 Building Your Smart Fan
7.4 Components of Smart Fan
7.5 Application of Smart Fan
7.6 Basics of Internet and Wireless Communication

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PHN TECHNO LAB

GRADE 4

Chapter 1: Force, Work & Energy

1.1   Introduction to Force and Motion
1.2   What is Work?
1.3   What is Energy & Their Types
1.4   Introduction to Energy Conversion
1.5   Wind Turbines & Dams

Chapter 2 : Robotic Arm and Its Components

2.1   Introduction to Robotic arm
2.2   Robotic Arm and Its Components
2.3   Simple Machines in Robotic Arms
2.4   Energy Sources in Robotics
2.5   Applications of Robotic Arms in the Real World

Chapter 3: Introduction to Satellite Robots / Robots on Other Planets

3.1   What are Satellite?
3.2   What are Satellite Robots?
3.3   Introduction to Natural Satellite
3.4   Natural v/s Artificial Satellite
3.5   Exploring Moon with Lunar Roving Vehicle (LRV)

Chapter 4: Powering Our World: The Magic of Batteries

4.1   Introduction to Batteries
4.2   Types of Batteries
4.3   Battery Safety Measures
4.4   Battery Maintenance and Environmental Impact

Chapter 5 : Water Level Indicator

5.1   Introduction to Circuits
5.2   Components of the Water Level Indicator
5.3   Building the Water Level Indicator
5.4   Testing and Troubleshooting

PROJECTS

Project 1: Car Auto- Headlamps and Rain-Sensing Wiper

6.1   Introduction to Automobile Technology
6.2   Working Principle of Auto Headlamps
6.3   Working Principle of Rain-Sensing Wipers
6.4   Designing and Building

Project 2: Electronic Piano with Synchronize Lighting

7.1   Introduction to Electronic Piano
7.2   Getting Familiar with Electronic Piano Functions
7.3   Basic Music Theory
7.4   Music and Technology

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SYLLABUS

GRADE 5

Chapter 1: Internet of Things

1.1 Introduction to Internet of Things
1.2 Communication Between IoT Devices
1.3 Application of IoT Devices

Chapter 2: Sensors: The Magic Behind Modern Technology

2.1 Introduction to Sensors
2.2 Ultrasonic Sensors & Their Working
2.3 SONAR Radar Using Ultrasonic
2.4 DHT11 Sensor

Chapter 3: Display and Communication

3.1 Introduction to Data Representation
3.2 Types of Graphs
3.3 What is Data Visualization
3.3 Communication: Introduction to the Digital World 0/1
3.4 Temperature and Humidity Display

Chapter 4: Electric Currents in Action: AC and DC

4.1 Introduction to Current-AC/DC
4.2 Introduction to Circuits
4.3 Series and Parallel Circuits
4.4 Conductors and Insulators
4.6 Introduction to Electrical Safety

Chapter 5: Motors

5.1 Introduction to Motors
5.2 Types of Motors in Robotics
5.3 Introduction to Servo Motors

Chapter 6: IR Remote-Controlled Robot - Working

6.1 Introduction to Wireless Technology
6.2 Basics of Infrared (IR) Technology
6.3 Components of an IR Remote-Controlled Robot
6.4 Working of an IR Remote-Controlled Robot

Chapter 7: Introduction to Solar Panels

7.1 What are Solar Panels & Their Working
7.2 Solar Energy and the Environment
7.3 Solar Panel in Everday Life

Chapter 8: Becoming a Junior Arduino Programmer

8.1 Types of Cables
8.2 What is Arduino?
8.3 Working with Arduino
8.4 Arduino Inputs and Outputs
8.5 Introduction to Serial Monitor of Arduino

PROJECTS

Project 1: Soil Moisture Meter

9.1 Introduction to Soil Moisture Measurement
9.2 Building a Simple Soil Moisture Meter
9.3 Conducting Experiments with the Soil Moisture Meter

Project 2: IR remote controlled robot

10.1 Introduction to Robotics and Remote Control
10.2 Components of an IR Remote Controlled Robot
10.3 Building the IR Remote Controlled Robot

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GRADE 6

Chapter 1: Electronics Fundamentals

1.1 Introduction to Electronics
1.2 Electronic Components
1.3 Concepts of Current, Voltage, and Resistance
1.4 Switches, Resistors, and Capacitors
1.5 Magic of LED Blinking: Creating Patterns with Colors

Chapter 2 : Programming Basics

2.1 Introduction to Computers and Programmings
2.2 Introduction to Coding & Algorithm
2.3 Logical Thinking and Problem Solving

Chapter 3: Electromagnetic Principles

3.1 Magnets & Their Relation with Electric Current
3.2 Magnets Used in Power Generation
3.3 Introduction to Light & Wave
3.4 Light Detection Using LDR

Chapter 4: Breadboard and Its Connections

4.1 Introduction to Breadboard
4.2 Components of a Breadboard
4.3 Making Simple Connections
4.4 Creating Basic Circuits

Chapter 5 : Introduction to Arduino

5.1 Arduino IDE
5.2 Block Based Programming - Overview
5.3 Introduction to Sensors and Actuators

Chapter 6 : Barcodes and Identification Technologies

6.1 Introduction to Barcodes & Scanners
6.2 Understanding QR Codes & Their Types
6.3 Differences between QR Codes and Barcodes
6.4 Introduction to RFID & Its Application

Chapter 7 : Computer Security

7.1 Internet Safety and Etiquettes
7.2 What is Virus & Anti-virus
7.3 Safe Internet Practices

PROJECT

Project : Line follower Robot

8.1 Introduction to Robotics of Line Follower Robot
8.2 Components of a Line Follower Robot
8.3 Working Principle of Line Follower Robot
8.4 Programming the Line Follower Robot
8.5 Sensors and Their Applications

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SYLLABUS

GRADE 7

PROJECT

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PHN TECHNO LAB

GRADE 8

Chapter 1 : Electronics and PCB Design

1.1   Cables and Their Making
1.2   PCB(Printed Circuit Boards) Designing
        Fundamentals
1.3   Sensor Integration and Data Collection
1.4   Graphs and Serial Plotter
1.5   Introduction to Soldering Techniques

Chapter 2 : Robotics and Automation

2.1   Robots : Types
2.2   OTTO Robot
2.3   Introduction to Displays
2.4   AI in Robotics: SOPHIA

Chapter 3 : Programming and Coding

3.1   Introduction to Loops
3.2   Control Flow
3.3   Functions
3.4   String
3.5   List & Tuples
3.6   File Handling & Dictionaries

Chapter 4 : Microsoft Certification and Excel

4.1   Introduction to Microsoft Excel
4.2   Working with Formulas and Functions
4.3   Data Visualization and Formatting
4.4   Data Manipulation and Sorting
4.5   Collaboration and Sharing

Chapter 5 : Entrepreneurship

5.1   Product Development and Innovation
5.2   Market Analysis
5.3   Marketing Strategies: Business Planning
5.4   Legal and Ethical Aspects
5.5   Financial Literacy
5.6   Risk Management and Decision Making

PROJECTS

Project 1 : Realtime Weather Check(Humidity, Temperature..)

6.1   Instruments for Weather Data Collection
6.2   Meteorology and Climate Science
6.3   Realtime Data Acquisition and Analysis
6.4   Building a Realtime Weather Monitoring System
6.5   Components Required

Project 2 : OTTO Robot

7.1   Introduction to OTTO Robot
7.2   Building OTTO Robot
7.3   Programming OTTO Robot
7.4   Exploring OTTO Robot's Capabilities

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SYLLABUS

GRADE 9

Chapter 1: Practical Skills and Project Development

1.1 Soldering Techniques
1.2 Intermediate Internet of Things Projects
1.3 Hands-on Sessions on Projects
1.4 Introduction to Design Concepts-UI/UX

Chapter 2 : Next Step In Python

2.1 Introduction to Object Oriented Programming
2.2 Classes, Objects & Attributes
2.3 Methods, Abstraction & Inheritance
2.4 Encapsulation & Polymorphism

Chapter 3 : Engineering and Technology Applications

3.1 What is Engineering
3.2 Biomedical Engineering
3.3 Agricultural Engineering
3.4 Encryption and Decryption
3.5 Mobile Password Recovery

Chapter 4 : Professional Development and Portfolio-keeping

4.1 Understanding Professional Development
4.2 Building Communication Skills
4.3 Creating and Managing a Professional Portfolio
4.4 Exploring Career Options and Pathways
4.5 Identifying Interests and Strengths

Chapter 5 : Microsoft Office and Certifications

5.1 Introduction to PowerPoint
5.2 PowerPoint Interface and Features
5.3 Designing Effective PowerPoint
5.4 Formatting and Customization
5.5 Collaboration and Sharing
5.6 Advanced PowerPoint Features

Chapter 6 : Enterpreneurship: Advanced

6.1 Business Arithmetic
6.2 Resource Mobilization
6.3 Patent Drafting and Copyright: IPR
6.4 Business Communication
6.5 Entrepreneurial Finance

PROJECTS

Project 1 : Hand Follower Robot

7.1 Building the Hand Follower Robot
7.2 Components of Hand Follower Robot
7.3 Mechanical Design and Engineering
7.4 Programming the Hand Follower Robot
7.5 Computer Vision and Image Processing

Project 2 : 3D buddy Robot

8.1 Introduction to 3D Buddy Robot
8.2 Design and Components of 3D Buddy Robot
8.3 Programming the 3D Buddy Robot
8.4 Building and Testing the 3D Buddy Robot

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GRADE 10

Chapter 1 : Technology and Programming

1.1 Understanding Operating Systems
1.2 Types of Operating System
1.3 OS Installation
1.4 Introduction to AI & ML
1.5 Superised & Unsupervised Learning
1.6 Re-Inforcement Learning
1.7 OpenCV Introduction

Chapter 2 : Hands-on Sessions on Different Projects

2.1 Introduction to Robotics and Project Scope
2.2 Self Balancing Robot
2.3 Robotic Arm
2.4 Components Required
2.5 Troubleshooting and Optimization

Chapter 3 : Finance and Legal-keeping

3.1 Basic Economics
3.2 Personal Finance
3.3 Goods and Services Tax (GST)
3.4 Income Tax Return (ITR)
3.5 Trademark

PROJECTS

Project 1: Internet of Things Projects (Advanced)

4.1 Alexa Integration with Robots
4.2 Components required for Alexa Integration with Robots
4.3 Components required for Building Drones
4.4 Triple-axis Accelerometer
4.5 Components required for Triple-Axis Accelerometer

Project 2: Robotic Arm

5.1 Introduction to Robotics
5.2 Components Required in Robotic Arms
5.3 Assembly of the Robotic Arms
5.4 Applications of Robotic Arms

Project 3: Self-Balancing Robot

6.1 Introduction to Self-Balancing Robots
6.2 Control Systems and Programming
6.3 Design and Construction of Self-Balancing Robot
6.4 Troubleshooting and Fine-tuning

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SYLLABUS

GRADE 11

Chapter 1 : Event and Display Technology

1.1   Introduction to Event and Display Technologies
1.2   Principles of Operation
1.3   Innovations in Screen Display Technologies
1.4   Broadcasting Technology and Live Streaming

Chapter 2: Internet of Things (IoT) and Cloud

2.1   Basics of Networking
2.2   IoT Architecture and Components
2.3   Data Handling and Cloud Computing
2.4   Introduction to Cloud Computing
2.5   IoT Security and Privacy

Chapter 3 : Programming and Software Development

3.1   Exploring Python Modules for IoT
3.2   Reading Python Documentations
3.3   API (Application Programming Interface)
3.4   Python "requests" API Module
3.5   Image Processing Using OpenCV
3.6   Cloud Computing and its Role in IoT.

Chapter 4: Microsoft Technologies and Certifications

4.1   Introduction to Microsoft Technologies
4.2   Importance of Certifications
4.3   Understanding Different Certification

Chapter 5 : Career Development

5.1   Resume Building
5.2   Essential Components of a Resume
5.3   Formatting and Layout Guidelines
5.4   Portfolio Designing
5.5   Types of Portfolios
5.6   Selecting and Organizing Portfolio Content
5.7   Developing Professional Etiquette

PROJECTS

Project 1 : Heart Disease Prediction

6.1   Data Collection and Preprocessing
6.2   Exploratory Data Analysis (EDA)
6.3   Machine Learning Algorithms for Heart Disease Prediction
6.4   Building a Heart Disease Prediction Model

Project 2 : Website Integration with Internet of Things

7.1   Basics of Web Development
7.2   Components and Architecture of IoT Systems
7.3   Collecting and Processing IoT Data
7.4   Web Development for IoT Integration
7.5   Security and Privacy in IoT Integration

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SYLLABUS

GRADE 12

Chapter 1 : Robotics and Engineering(Maths behind Self-Balancing Robot)

1.1   Emerging Technologies in Robotics
1.2   Electronics and Circuitry
1.3   Materials and Manufacturing
1.4   Sensors and Perception
1.5   Math Fundamentals in Robotics
1.6   Mechanics and Kinematics of Robots

Chapter 2 : Telegram Bot

2.1   Introduction to Telegram Bots
2.2   Building Telegram Bot Functionality
2.3   Storing Data and State Management
2.4   Advanced Features and Integrations
2.5   Setting up the Development Environment

Chapter 3: Academics and Writing

3.1   Study Skills and Time Management
3.2   Research Skills and Information Literacy
3.3   Academic Writing Styles and Formats
3.4   Literature Analysis and Literary Devices
3.5   Understanding the Research Process
3.6   Data Analysis and Interpretation

Chapter 4 : Entrepreneurship and Business-keeping

4.1   Scaling and Growth in Entrepreneurship
4.2   Innovation and Technology in Entrepreneurship
4.3   Entrepreneurship Competition
4.4   Entrepreneurial Case Study
4.5   Entrepreneurial Project

PROJECTS

Project 1: Python Projects: MAJOR

5.1   Project: To-Do List
5.2   Code of Project

Project 2: Mega Project Planning

6.1   Project Planning and Scope
6.2   Project Proposal and Documentation
6.3   Design and Prototyping
6.4   Testing and Evaluation
6.5   Project Presentation and Documentation

Project 3: Intruder Detection

7.1   Introduction to Intruder Detection Systems
7.2   Components of an Intruder Detection System
7.3   Working Principle of Intruder Detection Systems
7.4   Designing and Building

Disclaimer: The syllabus is subject to periodic customization to ensure its alignment with the most up-to-date technological developments.

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LAB EQUIPMENTS

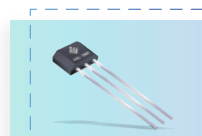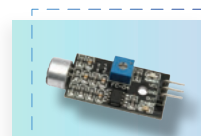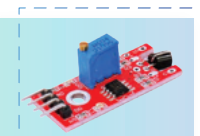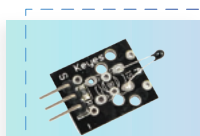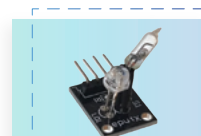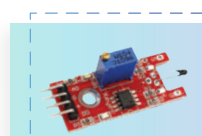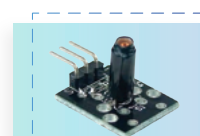|		
Arduino Uno	Breadboards & Mini Breadboards	LCD display with 12c
50 Type of Resistors	4 Type of Capacitors	**Light Cup**
Buzzer	**Jumper cable**	**Single LED**
RGB Module	RTC module(DS1307)	LDR Sensor
Red LED	**Green LED**	**Blue LED**
Yellow LED	**RGB LED'S**	Temperature & humidity sensor
LED Cob 12v	**555 IC**	Voltage Regulator 7805
DC Motor	**Load Cell**	7 Colour Flash
IR Remote	**12V Solenoid**	10 core rainbow wire
Piezo electric plate	Ultrasonic Sensor Module	**Gas Sensor**
Water level hall sensor	Pressure Sensor	**PIR Sensor**
Flame Sensor	Hall Magnetic Sensor	**Rain Sensor**
Linear Hall Sensor	Temperature Sensor	Big Sound Sensor
Touch Sensor	Analog Temperature Sensor	**Tilt Switch**
Digital Temperature Sensor	Shock Sensor	Small Sound Sensor
Tracking Sensor	Avoidance Sensor	**IR Receiver**
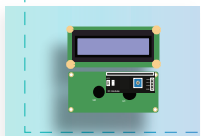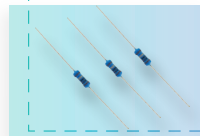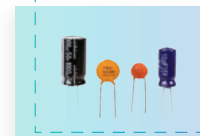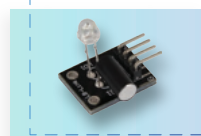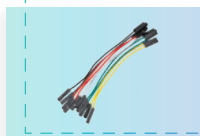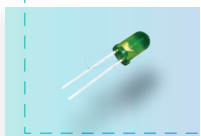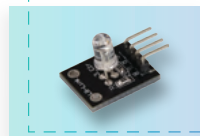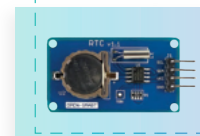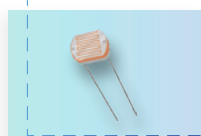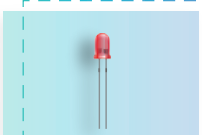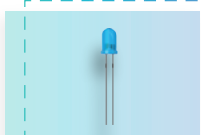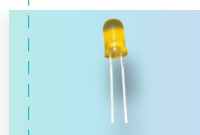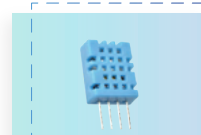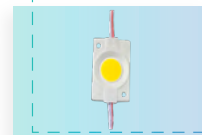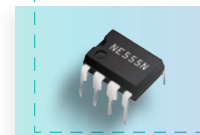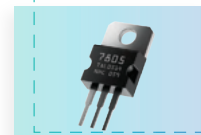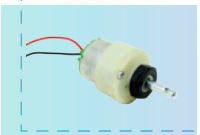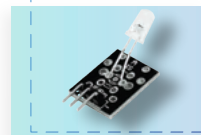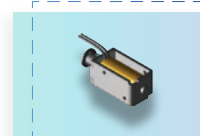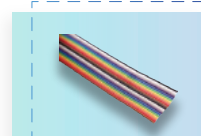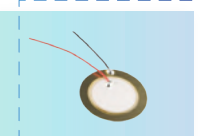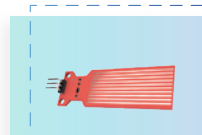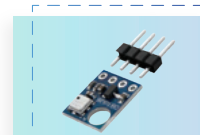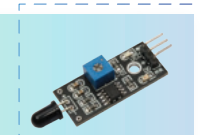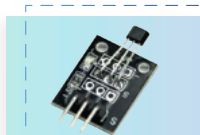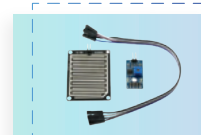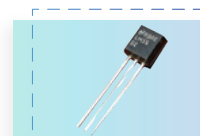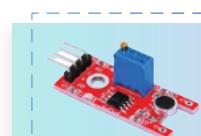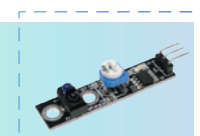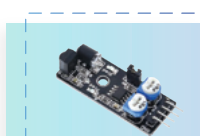
JoyStick	Relay	SMD RGB	JST Wires with connectors	Zero PCB	Potentiometer
Two Colour LED	Button	Switch	Passive Buzzer	Aligator Connectors	BC 547 Transistor
Berg Strips Male	Solar Panel	Berg Strips female	Reed Switch	Water Flow Sensor	Heartbeat sensor
1 N4007 Diode	Zener 5V1	Dot Matrix display	Niodium Magnet	7 Segment Display	Heart-rate sensor
Trays	Extension Board	First Aid Kit	Fire Extinguisher	Safety Goggles	ECG Sensor
Safety Gloves	Vernier Calliper	Digital Multimeter	Paper Microscope	Servo Tester	MPU 6050
Stainless Steel Measurement Ruler	Glue Gun	Solder Gun with Metal stand	Glue Stick	Magnifying Glass With Stand	ADXL335 Accelometer
RFID Tag	RFID Reader	Servo Motors	BO Motors	L293d Motor Driver	Stepper Motor With Drive Board
Wheels	Caster Wheel	Allen Keys	Drill Machine Set	Spanner Set	Nose Plier

Screw Driver Set	Hanging Peg Board	M3 Nuts	M3 Spacers	M3 Screws	PCB Cleaning Brushes
Cable Tie	Sand Paper	Power Supply	USB A To B Cable	Micro USB To USB A Cable	IR Sensor Module
Keypad module	GSM module	Laser Emitter	IR Emission	Rotary Encoders	Tap Module
Speaker module	Bluetooth module	ESP 8266	ISD 1820 voice recorder module	Mini USB To USB A Cable	Double Side Tape
Alexa Echo Dot	CP Plus Wifi Camera	Temperature Humidity Display With Digital Clock	Insulation Tape	3D Printer	Posters
Plier	M3 Nut Driver	Lead Cutter	Wire Stripper	Filament	Small Hex Saw
Peg Board hook set	Preset Drivers	Tester	Hammer	Solder metal	Desol-wik
P 10 Display	Buddy Robot	Otto Robot	Line Follower Robot	And Many More	

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