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AI & ROBOTIC LAB-1
Order Code - STEM-ARL1

What is Steam, Robotics & AI?
Integrated STEAM-Robotics and AI (Artificial Intelligence} is an interdisciplinary approach to teaching and learning that combines Science, Technology, Engineering, Art and Mathematics (STEAM) with Robotics and AI. This approach emphasizes problem-solving, critical thinking, and hands-on learning experiences, allowing students to apply STEM concepts to real-wor ld challenges.

Through integrated STEAM-Robotics and AI, students learn how to design, build, program, and operate robots and other automated systems using a variety of tools, such as sensors, motors, and microcontrollers. They also learn about the principles of AI, including machine learning and computer vision, and how to apply these principles to solve complex problems.

Integrated STEAM- Robotics and AI programs typically focus on project-based learning, where students work in teams to design and build solutions to real-world challenges. This approach promotes collaboration, communication, and creativity, and prepares students for the 21st-century workforce,where STEM skills and knowledge

How will young students be benefited?

- To provide exposure of future technological world.
- To build innovative solutions for real-life problems.
- To introduce learning by doing at an early age.
- To nurture 21st Century skills by Project-based learning.
- To enhance their problem solving approach towards community problems in line with

Top Skills in Demand

- Analytical thinking and innovation
- Active learning and learning strategies
- Complex problem-solving
- Technology design and programming
- Critical thinking and analysis
- Creativity,originality and initiative
- Leadership and social influence
- Reasoning and ideation

Tesca Technologies Pvt. Ltd.

Note: Specifications are subject to change.

01.07.2024

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END-TO-END IMPLEMENTATION & SUPPORT PLAN

Resources Required

for setting up a Lab at School

- A room/built space of around 600-1200 sq.Ft.
- A set of 4-6 work tables for carrying out hands-on activitiesin a group.
- Around 25-30 Mini Tables/Choirs for students to sit
- A set of Cabinets/Cupboards Sideboards for keeping the Hardware DIV Kits/Equipment
- A set of 4-6 Computers/Laptops with Internet Access & Connectivity
- Access to Projector/Whiteboard/LED Screen for presenting contents, Videos & PPTs

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DIV Kit Name : Tinker Orbits
Description : Tinker Orbits is a STEAM Robotics kit for kids to explore the basic concepts of electronic circuits, sensors, Robotics, logics and programming with the help of plug 'n' play modules. It is an educational DIV kit for students which covers the learners ' journe y around Robotics from Beginner level to the advanced Robotics concepts. This contains both programmable and non- programmable activities. Also, Programma ble activities are covered through Block Coding as well as Textual programming.
Category : AI, IOT & Robotics
SKU Number : 1609 SKU
Programmable/ Non- Programmable : Both
Kit to Student Ratio: 1:5
Grade Category: 3rd to 12th

DIV Kit Name : Tinker Orbits - Extended PBL Box
Description : Tinker Orbits extended Project based kit offer students to create 12 unique projects around the the concepts of AI like Smart Home, Smart Irrigation System, Railway Crossing, Smart dustbin etc.
Category : AI Project Based Learning Kit
SKU Number : 1652 SKU
Programmable/ Non- Programmable : Programmable
Kit to Student Ratio: 1:4
Grade Category: 5th to 12th

DIV Kit Name : Arduino Robotics Kit
Description : End-To-End Platform for students to Kick start child's journey in Robotics. Students can learn Robotics programming through Block Coding and Textua l Coding. Also, Interfacing of Sensors and actuators with Arduino controller.This kit is aimed at beginner s to advanced level learners and can be used to jump start child' growth and learning towards DIV electronics and robotics system.
Category : STEM Robotics
SKU Number : 1606 SKU
Programmable/ Non- Programmable : Programmable
Kit to Student Ratio: 1:5
Grade Category: 6th - 10th

DIV Kit Name : Mechatron Kit
Description : MECHATRONICS Robotic Kit is for 6+ Age Kids. Contains 150+ parts such as metallic strips, Remote control, control card, motors, gears, etc. Comes with an assembly guide w ith step-by-step instructions to help students build the robot-associated concepts of science and math mentioned with every design. Robotics kits for Kids & Robotic kits for students to make their own Robotics projects.
Category : STEM Robotics
SKU Number : 1612 SKU
Programmable/ Non- Programmable : Non Programmable
Kit to Student Ratio: 1:4
Grade Category: 2nd to 8th

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DIV Kit Name : Sensor Box
Description : This Sensor Kit compatible with Arduino is supplied with a var iety of sensors t hat are compatible with Arduino Boards. This is the most complete performance starter kit with all the essential Arduino sensors. This kit contains excellent sensors which are compatible with Arduino. You can find the best sensors, whether you're a beginner or an expert in this field, and use them to create the best DIV projects on your own. Prototyping will be easy and fun- loving with this Kit .
Category : STEM-Robotics
SKU Number : 1608 SKU
Programmable/ Non- Programmable : Programmable
Kit to Student Ratio: 1: All
Grade Category: For Project Purpose

DIV Kit Name : Soldering Box
Description : Hookup Wire Roll (Red), Hookup Wire Roll (Black), Hot glue gun, Soldering Iron 30 watts/230 volts, De-Soldering Pump, Soldering Flux (Paste)- 50grams, DE-soldering Copper Braid(Solder Wick),Soldering Wire: 20/22 AWG soldering Wire with rosin core flux (100 Grams),Soldering Helping hand, Glue Sticks, Safety goggles. Safety Gloves Pairs, Safety Mask
Category : Accessories
SKU Number : 1601 SKU
Programmable/ Non- Programmable : NA
Kit to Student Ratio: 1:All
Grade Category: For Project Purpose

DIV Kit Name : STEM-Electronics
Description : The Smart Circuit kit contains more than 50 DIV (Do It Yourself) projects with more than 40 interactive simulations and 10 real-world model templates and a colorfull user manual with its easy-to-follow instructions, smart electronics kit gives a hands-on education in how electrical circuits work to run theeveryday devices that they're familiar with. They'll also gain valuable lessons in building circuit design. This kit contains more than 12 electronic components, more than 30 magnetic blocks as well as more than 40 accessories for real model building along with dual power (USB + DC) which can be used to create many projects also no soldering is required.
SKU Number : 1604 SKU, **Programmable/ Non- Programmable** : Non-Programmable, **Kit to Student Ratio**: 1:4, **Grade Category**: 1st to 8th

DIV Kit Name : STEM BOT
Description : Stem Bot is a graphical programming robot for STEM education, which inherits playability and simple operation on the micro:bit (Version 2). Includes various sensors like IR (Infrared Sensor), Ultrasonic sensor, and Light sensor to make DIV robotics projects. MakeCode is a free online coding platform availab le to code and learns advanced coding concepts.
Category : AI Based Robotics Kit
SKU Number : 1603 SKU
Programmable/ Non- Programmable : Programmable
Kit to Student Ratio: 1:5
Grade Category: 6th- 12th

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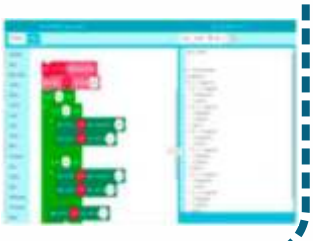
DIV Kit Name : AI Connect Platform Recommended in AI STEP Up Module by NITI Aayog & CBSE
Description : "Subscription of AI Connect platform for the programming of AI (Python.Python Bascis, Machine learning and AI) which will be covering 100% syllabus of CBSE and SO+ Extra Activities for 5th Onwards.
Category : AI Coding Platform
SKU Number : 9004 SKU
Programmable/ Non- Programmable : Programmable
Kit to Student Ratio: 1:1
Grade Category: 5th- 12th



DIV Kit Name : Accessories Box
Description : This box contains t he necessa ry tools listed below, which will be required to operate the DIV kits and hardware mentioned above: Wire Stripper,Bulb Holder, Power St rip Adaptor, Multimeter, 12 V Adoptor and USB to DC Jack Cable.
Category : Accessories
SKU Number : 1653 SKU
Programmable/ Non- Programmable : NA
Kit to Student Ratio: 1:All
Grade Category: For Project Purpose

DIV Kit Name : Humanoid Robot
Description : Voice Intelligent RC Robot LED expression voice dialogue intelligent RC robot toy with lights. Robot can glide, dance, sing, tell stories, volume adjustments, and communicate with players according to the script . Increase the ingenuity of children,the cultivation of the independe nt persona lity . Robot toy inspires imaginative play and curiosity about science. Rotata ble head, enjoy more fun. Flexible hand actions.
Category : Humanoid Robot
SKU Number : 1646 SKU
Programmable/ Non- Programmable : Non- Programmable,
Kit to Student Ratio: 1:All
Grade Category: 6th to10th

DIV Kit Name : Bitli
Description : Bitli empowers students to unleash t heir creativity. From basic movements to complex AI-driven act ions, it adapts to student's skill levels and encourages them to experiment with new ideas. Based on the Bitli VI ,the micro: bit Bit li Bricks Pack contains 360 degrees servos, LED strips, and almost 200 pieces of bricks. It provides hands-on experience to learn A I, Robotics & Coding with 15+ robotics configurations and 50+ proj ects.
Category : A I & Robotics
Programmable/ Non- Programmable : Programmable
Kit to Student Ratio: 1:5
Grade Category: 3rd to 10th