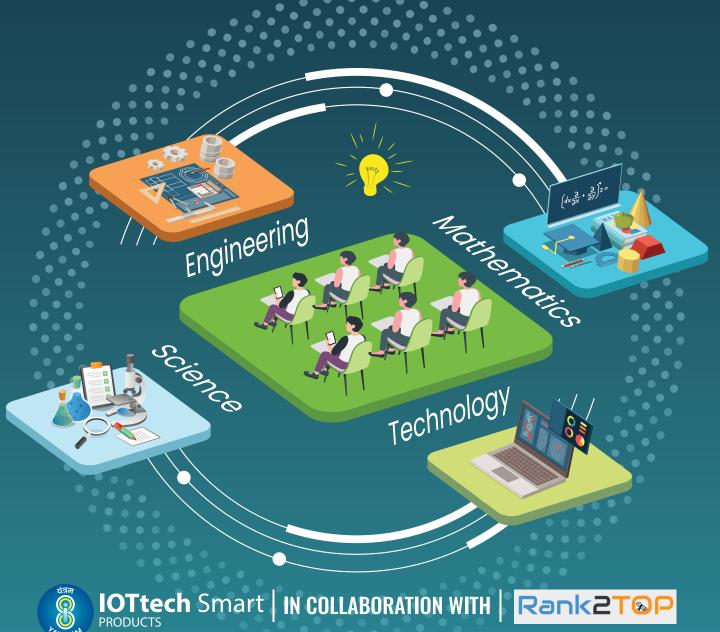


SCIENCE ENGINEERING MATHEMATICS TECHNOLOGY









IOTtech STEM Tinkering Lab Setup

Introduction:

To foster a scientific mind-set and develop a spirit of creativity and curiosity in young minds, the Indian government established the Atal Innovation Mission (AIM) at NITI Aayog. AIM suggests building an Atal Tinkering Lab (ATL). ATL is a place of work where young minds may give expression to their ideas through practical DIY mode and gain innovative skills.

This programme aims to cultivate in young minds a sense of wonder, imagination, and creativity as well as to teach them skills like design thinking, computational thinking, adaptive learning, physical computing, quick calculations, measurements, etc. These ATL laboratories use STEM (Science, Technology, Engineering, and Math) methods to develop the minds of the next generation. The word is widely used to describe curricular choices or educational strategies in schools. The shortage of STEM-educated workers could make this industry less effective, which has implications for immigration law, workforce development, and issues of national security.

Therefore, IOTtech Education introduces this STEM Tinkering Lab Setup for the Schools and Colleges to foster the millions of students in India who have the potential to become Neoteric Innovators.



About Company

IOTtech Education is one of the main divisions of **IOTtech Group** or **IOTtech Software** which is a pioneer supplier of cutting-edge IT Hardware and Software technologies since 2019. We have been developing and serving businesses with innovative technology solutions such as **Internet of Things (IoT)** Products for Industrial & Home Automation and efficient smart office systems, **Artificial Intelligence (AI)**, **Machine Learning (ML)**, **Web and Mobile ERP solutions** for your school or business management, and all types of android and ios app development as needed.

We work to achieve every aspect of your business growth that leads to client satisfaction by developing efficient interfaces, custom mobile applications, websites, and software that are tailored to our specific business requirements. At IOTtech Group, you can discover boundless answers for your necessities on one rooftop.

IOTtech Education:

IOTtech education is one of the main divisions of the IOTtech group which is continuously working in the field of education since 2019. Our goal is to engage students in the continuous learning process and make it pleasant for both students and teachers.

OUR TOP KEY PRODUCTS ARE:-

RANK2TOP.COM - ACE SERIES

RANK2TOP.COM – HADS SERIES

Rank2top deals with online education for students who want to rise to the top of society. We have created an environment in which the best tutors in the world are always available to aspirant students.

STEM TINKERING LAB SETUP

STEM TRAINING STARTER KIT

STEM TRAINING ROBOTICS KIT

STEM ADVANCE TRAINING KIT

STEM Tinkering Lab is for the Schools and Colleges to foster the millions of students in India who have the potential to become Neoteric Innovators and STEM Training kits are specially designed for the students with the aim that it should logically and fundamentally increase the knowledge of **IOT**, **AI** and **electronics** & **technology** and at the same time, they can prepare themselves in advance for the smart world to come.

एक अप्रैल से लागू होगी नई शिक्षा नीति

उत्साहित

सासाराम | हिन्दस्तान प्रतिनिधि

केंद्र सरकार द्वारा नई शिक्षा नीति को हरी इंडी दे दी गई है। नई शिक्षा नीति को हरी इंडी मिलने व एक अप्रैल से इसे देश में लागू करने की घोषणा के बाद शिक्षा व्यवस्था में सुधार की संभावना बढ़ गई है। नई शिक्षा नीति में पहली कक्षा से पीजी तक की पढ़ाई व्यवस्था में आमलचल परिवर्तन दिखेगा।

शहर व जिले में शिक्षा के पुराने द्देरें से मुक्ति मिलने के साथ ही नई व्यवस्था के तहत शैक्षणिक सत्र की शुरूआत होगी। इससे अध्ययन व अध्यापन में कई स्तर पर परिवर्तन होने की संभावना है। कैक्निनेट ने नई शिक्षा नीति को हरी झंडी देदी है। 34 साल बाद शिक्षा नीति में बदलाव किया गया है। नई शिक्षा नीति को व्यवस्था में नसीरी से ले शोध कार्य तक के लिए कई नए प्रावधान लागु किए जाएंगे। पांच वर्षीय फंडामेंटल कोर्स में पहली से पांचवीं तक की पढ़ाई होती तो बोर्ड की पढ़ाई बंद हो जाएगी। नई शिक्षा नीति से
स्नातक व स्नातकोत्तर
कोर्स की पढ़ाई में काफी अंतर
आएगा। इससे शिक्षा का स्तर
और बढ़ेगा। डिग्री कोर्स तीन व
चार वर्ष के होने से छात्रों को
विकल्प मिलेगा। वहीं एमए के
बाद सीधे पीएचडी में प्रवेश का
मौका मिलने से शोध कार्यों को
भी बल मिलेगा।

-डॉ. कृष्णा प्रसाद, प्रावार्य, शेरशाह

प्राथिमक शिक्षा मातृभाषा व स्थानीय भाषा में देने का निर्णय सवोत्तम है। तीन साल व चार साल की डिग्री कोर्स होने से एमए में प्रवेश में भी छात्रों को कई तरह की सुविधा मिलेगी। नौंवी से ही सेमेस्टरवाइज पढ़ाई होने से छात्रों को आगे की तैयारी करने में काफी सहिलयत होगी।

-डॉ . सुधीर सिंह, प्राचार्य, रोहतास महिला कॉलेज । अभी उच्च शिक्षा व व्यावसायिक शिक्षा में नामांकन 26.3 प्रतिशत है, जो 50 प्रतिशत करने का लक्ष्य है। स्नातक डिग्नी का पुनर्गटन कर तीन–चार साल की अविध कर स्नातक के सभी वर्ष के डिग्नी की सार्थकता बनी रहेगी। क्षेत्रीय भाषा को महत्व देने से शिक्षा का स्तर बढेगा।

-डॉ. विकास कुमार, सहायक प्राध्यापक।

10वीं बोर्ड को खत्म करना निर्णायक कदम है, एमफिल कोर्स को समाप्त कर एमए के बाद पीएचडी में प्रवेश का मौका अहम है। यूजी डिग्री कोर्स तीन व चार साल में कर सरकार ने सभी को बराबरी का मौका दी है। स्कूली शिक्षा को 5+3+3+4 फॉर्मूले के तहत होने से सुविधा होगी।

-डॉ . विनोद उज्जैन, सहायक

प्राध्यापक ।

अब सीधे 12 वीं कक्षा मे<mark>ं ही बोर्ड</mark> परीक्षा बच्चों की ली जाएंगी।

फंडामेंटल कोर्स से होगी बच्चों के पढ़ाई की शुरूआतः बच्चों के पढ़ाई की शुरूआत फंडामेंटल कोर्स से की जाएगी। जिसमें चार वर्ष का बच्चा नर्सरी, पांच वर्ष का जूनियर केजी, छह वर्ष का सीनियर केजी, सात वर्ष का कक्षा एक, आठ वर्ष का कक्षा दो में पढ़ेगा। इसके बाद तीन वर्ष का तीसरी कक्षा, दस वर्ष का चौथी, 11 वर्ष का पांचवी कक्षा में पढ़ेगा। इसके बाद तीन वर्ष का मिडिल कोसं होगा।

जिसमें 12 वर्ष का छठवीं कक्षा, 13 वर्ष का सातवीं, 14 वर्ष का आठवीं में पढ़ेगा। इसके बाद चार वर्ष का सेकेंडरी कोर्स होगा। जिसमें 15 वर्ष का नौवीं, 16 वर्ष में दसवीं, 17 वर्ष में 11 व 18 वर्ष में 12 वीं बोर्ड परीक्षा देनी होगी। फेक्ट 12वीं कक्षा में बोर्ड होगी। एमफिल कोर्स भी बंद होगी। कॉलेज की डिग्री 4 साल की होगी। अब पांचवी तक के छात्रों को मातृभाषा, स्थानीय भाषा व राष्ट्र भाषा में ही पढ़ावा जाएगा।

बाकी विषय चाहे अंग्रेजी ही क्यों न हो, एक विषय के तौर पर पढ़ाया जाएगा। नौवों से 12 वीं कक्षा तक सेमेस्टर में परीक्षा होगी। स्कूली शिक्षा को 5+3+3+4 फॉर्मुले के तहत पढ़ाया जाएगा। वहीं कॉलेज की डिग्री तीन व चार साल की होगी। यानि कि ग्रेजुएशन के पहले साल में सर्टिफिकेट, दूसरे साल में डिप्लोमा, तीसरे साल में डिग्री मिलेगी। तीन साल की डिग्री उन छात्रों के लिए है जिन्हें उच्च शिक्षा नहीं लेना है।

वहीं उच्च शिक्षा करने वाले छात्रों को चार साल की डिग्री लेनी होगी। चार साल की डिग्री लेने वाले छात्र एक साल में ही एमए कर सकेंगे। अब छात्र एमए करने के बाद ही सीधे पीएचडी कर सकेंगे।



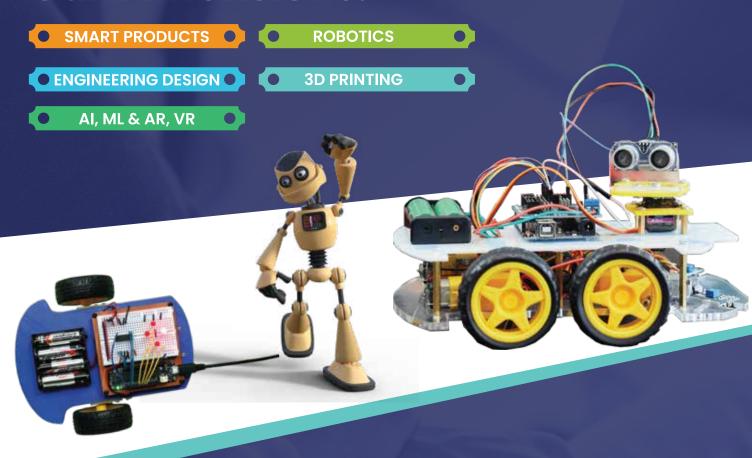
Mission & Vision

For many years, the method of teaching has not changed, and there are numerous inefficiencies in the current education system and traditional teaching methods. As a result, the government's adoption of the New Education Policy represents a paradigm shift. As a result, IOTtech Education embarked on a mission to reinvent and advance long-established teaching and learning practises. By combining Science, Technology, Engineering, and Math (STEM) with interesting content and advanced technologies such as Robotics, Artificial Intelligence, Machine Learning, Augmented Reality, and Virtual Reality, we can provide students with a superior learning environment and support the improvement of their outcomes. IOTtech's vision is to accelerate these shifts because teaching and learning are about to undergo rapid change.



Plot No. 13, 3rd Floor, Pocket B, Sector 17 Dwarka, New Delhi, Delhi 110075 Landmark: Near Sector 17 Police Station. Contact Us: +91 7827945489, +91 7827945514

Our Dimensions:





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General Services Offered and Value added Services

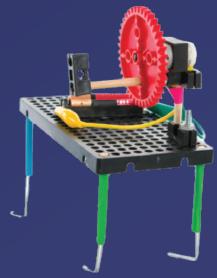


3D Design of Lab with Furniture, wall Designs and other Interiors Faculty Training Program (FTP)
Free Learning Resources
Video Tutorials

Practical Assessment

Value Added Services:

Regular Classes by IOTtech Smart Senior Engineers Science Exhibition & Fair/ E- Projects Competition Workshops, Webinars and Seminars Assessment & Certification Free Courses



Glimpses of ATL Labs and Designs





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Glimpses of Stem lab And Workshops (IOT, Robotics & Ai)



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Our Presence in School College/Institute



The Crest Academy



Hindu Sr. Sec. School, Sonipat



Shokeen International School



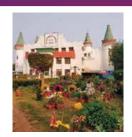
KRPG College, Mathura



VKV Rishabhdev



VKV Hurda



DAV NTPC Faridabad



Northcap University



HMR Institute of Technology and Management



L B Global School

OUR STEM/ATL KITS

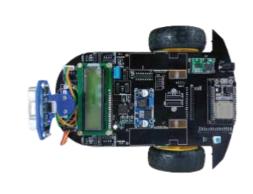




SENSOR KIT



IOT KIT



ROBOTICS KIT



OUR STEM Projects

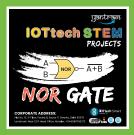


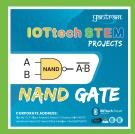


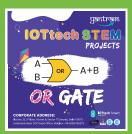






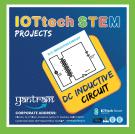
















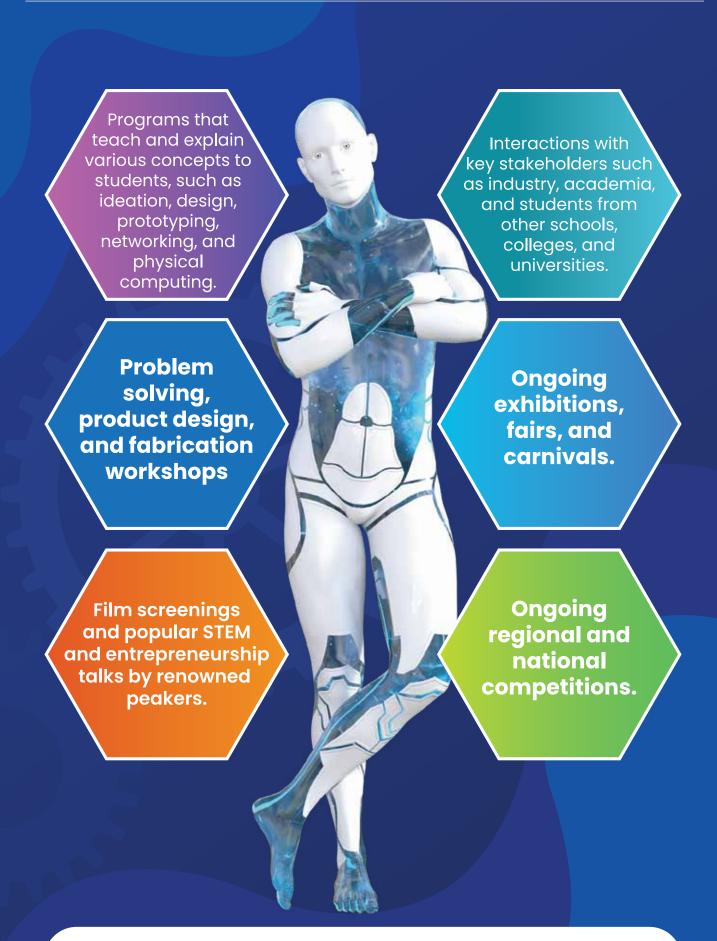




Rank2top's STEM E-books



Focal Characteristics of Programs



(This is the suggested Quantity is for a class of 20-30 students, could be scaled up as needed)

Category	Name	Description	Quantity	
Category	Name	Description	Suggested Quantity (30 Students)	•
Electronics Development	Arduino UNO or compatible Microprocessor and microcontroller	 Hardware development board with Memory and IO ports 	20	Consumable
Electronics Development	Breadboards & Mini Breadboard	Solderless 400 points and 800 pointsSelf-adhesive proto shield	20	Consumable
Electronics Development	General Purpose solderable Board	• Boards of each size of A1, A2 and A3	10	Consumable
Electronics Development	16x2 LDC Display	• USB Cable Set (A to B)	10	Consumable
Electronics Development	9 Volt battery, multiple resistors and capacitors for electronic projects (various sizes)	AmperageRange of resistanceCapacity of capacitor	20 kits	Consumable

(This is the suggested Quantity is for a class of 20-30 students, could be scaled up as needed)

Category	Name	Description	Quantity	
Category	Name	Description	Suggested Quantity (30 Students)	
Internet of Things & Sensors	IR Sensors Obstacle sensor	Detection rangeDetection angle	10	Consumable
Internet of Things & Sensors	Triple Axis Magnetometer	 3-Axis Magnetoresistive Sensors I2C Digital Interface Integrated 12-bit ADC Range of -8 to +8 Gauss 160 Hz Maximum Output Rate 	5	Consumable
Internet of Things & Sensors	Humidity Sensor	 Operating range: 20 - 95% RH Temperature: 0 - 60 Celsius Power supply: 1.5V AC (Maxsine) Operating frequency: 500-Hz - 2kHz 	5	Consumable
Internet of Things & Sensors	MQ-4 Natural Gas sensor	 High sensitivity to Methane, Natural gas Small sensitivity to alcohol, smoke Fast response Stable and long life Simple drive circuit 	3	Consumable
Internet of Things & Sensors	IR (transmitter) receiver -TSOP 1738	• Switching rate – 38 KHz	10	Consumable

(This is the suggested Quantity is for a class of 20-30 students, could be scaled up as needed)

Category	Name	Description	Quantity	
Category	Name	Description	Suggested Quantity (30 Students)	
Internet of Things & Sensors	Ultrasonic Sensor Module HC-SR- 04 or compatible	 Power supply Quiescent current Working current Effectual angle Ranging distance Resolution Working angle & dimension 	20	Consumable
Internet of Things & Sensors	Triple Axis accelerometer	 3-axis sensing Small, low profile package 4 mm × 4 mm × 1.45 mm LFCSP Low Power: 350 µA (typical) Single-supply operation: 1.8 V to 3.6 V Temperature stability 	5	Consumable
Internet of Things & Sensors	PIR Motion Detector Module	 High digital pulse when motion detected Low digital pulse when idle /no motion detected Sensitivity range (upto 6 m) Power supply: 5V -12V 	5	
Internet of Things & Sensors	CMOS IR Camera Module - 728x488	728 x 488 Resolution6V to 20V input50mA (at 12V)	2	Consumable
Internet of Things & Sensors	RFID Reader–Tags	 Current: 13-26mA / DC 3.3V Idle Current: 10-13mA / DC 3.3V Sleep Current<80uA Peak Current<30mA Operating Frequency: 13.56-MHz<30mA Read range between 20cm to 1m 	3	Consumable

(This is the suggested Quantity is for a class of 20-30 students, could be scaled up as needed)

Category	Name	Description	Quantity	
Category	Name	Description	Suggested Quantity (30 Students)	
Internet of Things & Sensors	RF Modules Tx & Rx 315 MHz ASK	 Frequency Range: 433.92/315 MHz Supply Voltage: 3 – 6 V Output Power: 4 – 16 Dbm Low power consumption Easy application 	5	Consumable
Internet of Things & Sensors	Voice Recognition	 Works on 4.5 to 5.5VDC Digital Interface: 5V TTL level UART interface Working Current < 40mA Small size Can recognize 5 Commands at one time Can record up to 15 commands 	1	Consumable
Robotics	Stepper motor with Driver board	28BYJ-48 ULN2003 5V Stepper Motor + ULN2003 Driver Board	5	Consumable
Robotics	DC motor	3-6 V, 2000 RPM for electric toy car, EK2153 or equivalent	5	Consumable
Robotics	4 Wheel robot car chassis kit	Car kit with DC motors, encoder, battery case LINK	3	Consumable
Robotics	Servo motors	3 TYPESPositional rotation servoContinuous rotation servoLinear servo	20	Consumable
Robotics	DIY Robotic kits		3-5	Consumable

(This is the suggested Quantity is for a class of 20-30 students, could be scaled up as needed)

Package 2: Rapid Prototyping Tools

Category	Name	Description	Quantity	
Category	Name	Description	Suggested Quantity	
Rapid Prototyping Tools	3D Printer Kit and tools	1.75 mm PLA Printer, With 180mm ×200mm ×160mm Build Volume, Spatula, Tweezers, Cutter, Screwdriver, Wrench etc.	1	Equipment
Rapid Prototyping Tools	Filament for 3D printer	1.75mm PLA filament. 750-1000 g spools	5	Consumable
Rapid Prototyping Tools	Set of Arts & Crafts Accessories egstationary items and basic prototyping material	Cardboard, Foam Core Boards, String, Rubberband, Popscicle Sticks, Wood Glue, Balsawood Sheets & Rods	5 5 50m 100 100 1 btl assort	Consumable

(This is the suggested Quantity is for a class of 20-30 students, could be scaled up as needed)

Category	Name	Description	Quantity	
Category	Name	Description	Suggested Quantity	Туре
Mechanical Tools	Hacksaw	Junior	1	Equipment
Mechanical Tools	Micro Chisel Set		1	Equipment
Mechanical Tools	Pliers	 External Straight Nose Circlip Plier Long Nose Plier Combination Mini Plier Wire stripping pliers Bent nose plier Needle nose pliers 	1 set	Equipment
Mechanical Tools	Mini Hack Saw		1	Equipment
Mechanical Tools	Ball Pen Hammer		1	Equipment
Mechanical Tools	Steel Shaft Claw Hammer		1	Equipment
Mechanical Tools	Fiber Glass Nail Hammer		1	Equipment
Mechanical Tools	Rubber Mallet		1	Equipment
Mechanical Tools	C-Clamp		1	Equipment
Mechanical Tools	Allen Key Set		1	Equipment

(This is the suggested Quantity is for a class of 20-30 students, could be scaled up as needed)

Category	Name	Description	Quantity	
Category	Name	Description	Suggested Quantity	Туре
Mechanical Tools	Workstation for drilling		. 1 .	Equipment
Mechanical Tools	12 piece combination Spanner Set		1	Equipment
Mechanical Tools	12 Piece Open ended Spanner Set		1	Equipment
Mechanical Tools	30 Piece Ratcheting Screwdriver Set		1	Equipment
Mechanical Tools	Baby Vice 60 mm		1	Equipment
Mechanical Tools	Ball Pen Hammer		1	Equipment
Mechanical Tools	6 Piece Precision Screw Driver Set		3	Equipment
Mechanical Tools	Adjustable Spanner		2	Equipment
Mechanical Tools	Wire Strippers	Wire Stripper Cutter Plier With Spring -26x6x20 Cms (LxWxH)	5	Equipment
Mechanical Tools	Screwdriver	Multi-purpose	5	Equipment
Mechanical Tools	Tool Set	Multi-purpose	3	Equipment

(This is the suggested Quantity is for a class of 20-30 students, could be scaled up as needed)

Category	Name	Description	Quantity	
Category	Name	Description	Suggested Quantity	Туре
Mechanical Tools	Hot glue gun + Glue Sticks	Range in open space (Standard Conditions) : 100 Meters	2	Equipment
Mechanical Tools	Soldering Iron Kit Temperature Controlled Soldering Station	Variable Wattage of Soldering Iron: 15-30 watts/230 volts Soldering Iron Temperature Range: 280°C to 450°C	2	Equipment
Mechanical Tools	DC Power Supply	0 - 30 V, 1 A digital DC power supply with variable adjustment	3	Equipment
Mechanical Tools	Cables	Micro USB, Mini USB, USB A-USB B, USB -USB. Each 10 pieces	10	Equipment
Mechanical Tools	Adapters	DC power Adapter with 5V, 12V. Each 10	10	Equipment
Mechanical Tools	Electric Screw Driver Set		1	Equipment
Mechanical Tools	1800 W Dual Tempe- rature Heat Gun		1	Equipment
Mechanical Tools	Return measuring tape 5Mx19mm		2	Equipment
Mechanical Tools	Stainless Steel 12" / 150 mm Rule		5	Equipment
Mechanical Tools	150 mm / 6" Digital Vernier Caliper		2	Equipment

(This is the suggested Quantity is for a class of 20-30 students, could be scaled up as needed)

Category	Name	Description	Quantity	
Category	Name	Description	Suggested Quantity	Туре
Mechanical Tools	12" Spirit Leve		1	Equipment
Mechanical Tools	Digital Pen electric Tester	Voltage		Equipment
Mechanical Tools	Digital Multi Meter	 Digital Multi Meter Voltage Current Resistance-7 functions + 19 ranges to cover DC voltage 200mV to 1kV, AC voltage 200 V - 750 V, DC current 200 µA - 10 A Resistance 200 -2 M Ohm and Transistor & diode test. 	5	Equipment

(This is the suggested Quantity is for a class of 20-30 students, could be scaled up as needed)

Package 4: Construction kit, Power Supply, Consumables, Accessories and Safety Equipment

Category	Name	Description	Quantity	
Category	Name	Description	Suggested Quantity	Туре
Construction kit	STEM Modular Const- ruction kits		2	Equipment
Power Supply & accessories	9 volt battery clips		20	Consumable
Power Supply & accessories	Hookup Wires	Red & Black set 100 Meters each	2	Consumable
Power Supply & accessories		Jumper Cable: Male-Male Male-Female Female-Female	400 80 50	Consumable
Power Supply & accessories	Power Strip for power adaptors		10	Consumable
Safety equipment	Standard first aid kit		1	Consumable
Safety equipment	Fire extinguisher (handy units)		1	Consumable
Safety equipment	Safety goggles (with/ without LED torch)		10	Consumable

SCIENCE

A PROCESS FOR ACQUIRING THE SCIENTIFIC KNOWLEDGE



TECHNOLOGY

THE APPLICATION OF SCIENTIFIC KNOWLEDGE FOR PRACTICAL PURPOSES



ENGINEERING

THE ACTIONS TO BRING SOMETHING NEW



MATHEMATICS

THE ABSTRACT SCIENCE OF CALCULATING QUANTITY AND SPACE





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