

**Package 1: Electronics Development, Robotics, Internet of Things and Sensors**

<b>Category</b>	<b>Name</b>	<b>Description</b>	<b>Suggested Quantity (in units)</b>	<b>Type</b>
Electronics Development	Arduino UNO or compatible Microprocessor and microcontroller	Hardware development board with Memory and IO ports	30	Consumable
Electronics Development	Arduino Nano		5	Consumable
Electronics Development	RASPBERRY PI 3	RASPBERRY PI 3 MODEL B	5	Consumable
Electronics Development	Breadboards & Mini Breadboard	Solderless 400 pin breadboard	20	Consumable
		Solderless 800 pin breadboard	10	
		Self Adhesive Proto Shield	10	
Electronics Development	General Purpose solderable Board	FR2 A Grade Material (140 x 90 mm)	20	Consumable
		FR2 A Grade Material (80 x 55 mm)	20	Consumable
		Female Berg Strip 40 pins	20	Consumable
		Male Berg Strip 40 pins	20	Consumable
Electronics Development	16x2 LCD display With I2C	Dot matrix LDC display with 16 characters x 2 lines	30	Consumable
Electronics Development	USB Cables	USB Cable Set (A to B)	30	Consumable
Electronics Development	9 Volt battery, multiple resistors and capacitors for electronic projects (various sizes)	Amperage, Range of Restistance, Capacity of Capacitator	30 kits	Consumable

Electronics Development	Linear Voltage Regulator	7805, 7812,7809	30	Consumable
Electronics Development	Water Pump module	DC12V 3W Submersible Water Pump	1	Consumable
Electronics Development	Piezoelectric Plate	Normal Copper based 4 cm Diameter approx	20	Consumable
Electronics Development	8*8 LED Matrix Module	Max7219 Dot LED Matrix Module Mcu Control LED Display Module	5	Consumable
Electronics Development	Bluetooth	HC 05 Working voltage 5 Volt	10	Consumable
Electronics Development	7 Segment Led Display	LED 4-Digit Display Module w/ Clock Point / 4-Pin Dupont Line for Arduino ( 20cm )	4	Consumable
Electronics Development	GSM	Sim800L Gprs Transfer Board Micro Sim Gsm Core Ttl Port Module for Arduino	3	Consumable
Electronics Development	GPS	GY-NEO6MV2 new GPS module	3	Consumable
Electronics Development	Laser Diode	650Nm 6Mm 5V Dc 5Mw Mini Laser Dot Diode Module	10	Consumable
Electronics Development	LDR Module	Photosensitive Ldr Light Sensor Module	30	Consumable
Electronics Development	Keypad	Universal 16 Key Switch Keypad	5	Consumable
Electronics Development	Joy Stick	Joystick Module for Arduino	4	Consumable
Electronics Development	Active Buzzer	small 5 volt	50	Consumable
		big 5 volt	30	Consumable
Electronics Development	Motor driver	L293d	5	Consumable
Electronics Development	Sound Playback Module	Voice Board Recording Recorder Playback Module on Board Microphone with Mic Sound Audio Loudspeaker	5	Consumable
Electronics Development	BO Motors With Wheel	Side Shaft BO Motor	12	Consumable
Electronics Development	Node MCU / Wemos D1	WIFI Internet Development Board Module Node MCU	5	Consumable
Electronics Development	Vibrating Motor	Vibrating Motor	30	Consumable
Electronics Development	Alligator Connectors	Multi Colour Alligator Connectors	100	Consumable

Electronics Development	Battery clips with DC Jack	9 volt battery clips with DC Jack	20	Consumable
Electronics Development	Hookup Wires	Red & Black set 100 Meters each	2	Consumable
Electronics Development	Jumper Cable	Male-Male	600	Consumable
		Male-Female	300	
		Female-Female	150	
Electronics Development	RGB LEDs	Regular 5mm 3-5 volt Range	100	Consumable
Electronics Development	LEDs (Red)	Regular 5mm 3-5 volt Range	500	Consumable
Electronics Development	LEDs (Green)	Regular 5mm 3-5 volt Range	500	Consumable
Electronics Development	LEDs (Blue)	Regular 5mm 3-5 volt Range	500	Consumable
Electronics Development	Diode	Different Basic Diodes kit	2	Consumable
Electronics Development	Push Button Switch	Tactile Switch Micro - Push to On Button	100	Consumable
Electronics Development	555 timer ic	555 timer ic	50	Consumable
Electronics Development	Atmega16u2	Individual IC (DIP)	5	Consumable
Electronics Development	MPR121	Capacitive touch module	10	Consumable
Electronics Development	Capacitive Touch Switch	Capacitive Touch Switch	5	Consumable
Internet of Things & Sensors	IR Sensors, Obstacle avoider sensor	Detection range, detection angle	10	Consumable
Internet of Things & Sensors	Triple Axis Magnetometer	3-Axis Magneto-resistive	5	Consumable
		Sensors		
		I2C Digital Interface		
		Integrated 12-bit ADC		
		Range of -8 to +8 Gauss		
		160 Hz Maximum Output Rate		
Internet of Things &	Humidity Sensor	Operating range: 20 - 95 % RH	5	Consumable

Sensors		Temperature: 0 - 60 Celsius		
		Power supply: 1.5V AC(Max sine)		
		Operating frequency: 500Hz - 2kHz		
Internet of Things & Sensors	MQ Series	MQ-4 Methane Natural Gas Sensor	2	Consumable
		MQ-3 Alcohol - Ethanol Sensor	2	
		MQ-7 High Sensitivity CO Carbon Monoxide Sensor Detector	2	
		MQ - 2 Smoke Detection	2	
		MQ-135 Air Quality Sensor	2	
Internet of Things & Sensors	IR (transmitter) receiver -TSOP 1738	Switching rate – 38 KHz	5	Consumable
Internet of Things & Sensors	Ultrasonic Sensor Module HC-SR-04 or compatible	Power supply	30	Consumable
		Quiescent current		
		Working current		
		Effectual angle		
		Ranging distance		
		Resolution		
		Working angle & dimension		
Internet of Things & Sensors	Triple Axis accelerometer-	3-axis sensing	5	Consumable
		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		
Internet of Things & Sensors	PIR Motion Detector Module	High digital pulse when motion detected	10	
		Low digital pulse when idle /no motion detected		
		Sensitivity range (upto 6 m)		
		Power supply: 5V – 12V		
Internet of Things & Sensors	Pulse Rate Heart Sensor	Pulse Rate Sensor Finger Basedwore on the finger or earlobe Working voltage 3-5V	2	Consumable
Internet of Things & Sensors	Relay Module	5V 10A 2 Channel Relay Module	10	Consumable
Internet of Things & Sensors	Soil Moisture Sensor	Soil Moisture Detection Humidity Sensor Module	3	Consumable
Internet of Things & Sensors	Touch Sensor	Capacitive Touch Sensor Module	3	Consumable
Internet of Things & Sensors	Metal touch sensor module		3	Consumable
Internet of Things & Sensors	Rain Drop Sensor	Rain Sensitive , Rain Drop Detection Sensor Module	3	Consumable
Internet of Things & Sensors	Flex Sensor	Flex Sensor 2.2 Inches	5	Consumable
Internet of Things & Sensors	Temperature Sensor	Temperature Sensor Lm35	20	Consumable
Internet of Things & Sensors	Force Pressure Sensor	force sensitive resistor with a square, 1.75x1.5", sensing area	2	Consumable
Internet of Things & Sensors	Color Recognition Sensor	TCS3200 Color Recognition Sensor	2	Consumable
Internet of Things & Sensors	Water Flow Sensor	Arduino Compatible	1	Consumable
Internet of Things & Sensors	Sound Sensor	Sound Sensor Module, Microphones module	5	Consumable

Internet of Things & Sensors	IR Sensors Array for Line Following	IR Sensors Array for Line Following	5	Consumable
Internet of Things & Sensors	10000 Mh 5 volt Power Bank	10000 Mh 5 volt Power Bank	5	Consumable
Internet of Things & Sensors	RFID Reader – Tags	Current :13-26mA / DC 3.3V	3	Consumable
		Idle Current :10-13mA / DC 3.3V		
		Sleep Current<80uA		
		Peak Current<30mA		
		Operating Frequency: 13.56MHz<30mA		
		Read range between 20 cm to 1 m		
Internet of Things & Sensors	RF Modules Tx & Rx 315 MHz ASK	Frequency Range: 433.92/315 MHz	5	Consumable
		Supply Voltage: 3 – 6 V		
		Output Power : 4 – 16 Dbm		
		Low power consumption		
		Easy application		
Robotics	Stepper motor with Driver board	28BYJ-48 ULN2003 5V Stepper Motor + ULN2003 Driver Board	5	Consumable
Robotics	DC motor	12V DC Gear 150 RPM	12	Consumable
Robotics	Servo motors	Position Servo Angle based Metal Gear	4	Consumable
		Small Servo Metal Gear	4	
		Continuous Metal Gear Servo 360	4	

		Small Servo Plastic Gear	30	
Robotics	150 RPM BO Motor	150 RPM BO Motor	10	Consumable
Robotics	L298P Motor Driver	L298P Motor Driver Shield or relative Driver Shield	5	Consumable
Robotics	Servo Motor Testor	CCPM 3 channel Servo Tester	2	Consumable
DIY Kit	Robotics DIY Kit	4 wheel robotic kit	4	Equipment
DIY Kit	Mechanical (Modular) Construction kit	Should be compatible with electronics	4	Equipment
DIY Kit	STEM learning/application Kit	Drone Kit	1	Equipment
		Aerospace Kit	1	Equipment
		Automobile Kit	1	Equipment
		Bio-medical Kit	1	Equipment
		Agritech Kit	1	Equipment
		Bio-tech Kit	1	Equipment
		Water/Sanitation Kit	1	Equipment
		Other potential STEM application Kit	1	Equipment

**Package 2: Rapid Prototyping Tools**

Category	Name	Description	Suggested Quantity	Type

Rapid Prototyping Tools	3D Printer Kit and tools	MANDATORY REQUIREMENTS: Printer Type : FDM ( Fused Deposition Modeling ) Minimum Dimensions: 160mm*160mm*160mm Build Size or 4 litre build volume. Nozzel : 0.3mm to 0.4mm nozzle diameter Slicing Softwares should be Free or Open Source LCD Screen UI that displays print metrics Good quality anti-bacterial fungal cover	1	Equipment
Rapid Prototyping Tools	Dedicated UPS/Power back up with a 2 hour battery back up at least		1	Equipment
Rapid Prototyping Tools	Filament for 3D printer	Compitable 700/1000 Grams Filament	5	Consumable
Rapid Prototyping Tools	Filament Storage Box		5	Consumable
Rapid Prototyping Tools	Set of Arts & Crafts Accessories – eg- stationary items and basic prototyping material	Cardboard	5	Consumable
		foam core boards	5	
		string	50m	
		rubberband	100	
		popscicle sticks	100	
		wood glue	1 btl	



**Package 3: Mechanical, Electrical and Measurement tools**

<b>Category</b>	<b>Name</b>	<b>Description</b>	<b>Suggested Quantity</b>	<b>Type</b>
Mechanical Tools	Hacksaw	150mm Junior Hacksaw	1	Equipment
Mechanical Tools	Extra hacksaw blades		10	Consumable
Mechanical Tools	Pliers	External Straight	1	Equipment
		Nose Circlip Plier	1	
		Long Nose Plier	1	
		Combination Mini Plier	1	
		Wire stripping pliers	1	
		Bent nose plier	1	
		Needle nose pliers	1	
Mechanical Tools	Mini Hack Saw	Mini 254mm Hacksaw	1	Equipment
Mechanical Tools	Hacksaw blades Mini		10	Consumable
Mechanical Tools	Ball Pein Hammer	Ball Pein Hammer	1	Equipment
Mechanical Tools	Steel Shaft Claw Hammer	Claw Hammer Steel Shaft	1	Equipment
Mechanical Tools	C-Clamp	Metal Clamp 3 " Inch size	4	Equipment
Mechanical Tools	Allen Key Set	10 Piece Ring Imperial Allen Hex key	1	Equipment
Mechanical Tools	Workstation for drilling		1	Equipment
Mechanical Tools	Spanner Set	12 piece combination Spanner Set	1	Equipment
Mechanical Tools	Ratcheting Screwdriver Set	30 Piece Ratcheting Screwdriver Set	1	Equipment
Mechanical Tools	Vice Normal	Table top vice fitted to the table	1	Equipment
Mechanical Tools	Screw Driver Set	6 Piece Precision Screw Driver Set	3	Equipment
Mechanical Tools	Adjustable Universal Multi Wrench 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
Mechanical Tools	Cordless Drill	Cordless Drill with 2 Battery Pack	1	Equipment
Mechanical Tools	Rubber Air Pump Cleaner Dust Blower	Rubber Air Pump Cleaner Dust Blower	2	Equipment
Mechanical Tools	Drill Bit Set	High Quality 13 Pcs HSS Drill Bits Set For for Wood, Iron, Aluminium, Plastic etc	1	Equipment
Mechanical Tools	File set	6 Inches	1	Equipment
Mechanical Tools	Flexible Cutting Mat	A/3 Size With Marked Pattern And Grids (18" X 12")	2	Equipment
Mechanical Tools	Plastic Tool Box with Organizer	For Keeping tools	2	Equipment
Mechanical Tools	PegBoard	Peg board System to mount tools on wall.	1	Equipment
Electric Tools	Hot glue gun	Range in open space (Standard Conditions)	2	Equipment
Electric Tools	Soldering Kit	Variable Wattage of Soldering Iron: 15-30 watts/230 volts	2	Equipment
		Soldering Iron Temperature Range: 280°C to 450°C		
		De-Soldering Pump, Soldering Flux (Paste) ,DE-soldering Copper Braid		
		(Solder Wick)		
		Soldering Wire: 20/22 AWG soldering Wire with rosin core flux (100 Grams)		
Electric Tools	Adapters	DC power Adapter with 5V, 12V	10	Consumable
Electric Tools	Electric Screw Driver Set		1	Equipment
Electric Tools	Dual Temperature Heat Gun	1800 W Dual Temperature Heat Gun	1	Equipment
Electric Tools	Soldering Helping hand		2	Equipment
Measurement Tools	Return measuring tape	Return measuring tape 5Mx19mm	2	Equipment
Measurement Tools	Stainless Steel Rule	Stainless Steel 12" / 150 mm Rule	5	Equipment
Measurement Tools	Digital Vernier Caliper	150 mm / 6" Digital Vernier Caliper	2	Equipment
Measurement Tools	Spirit Level	12" Spirit Level	1	Equipment
Measurement	Digital Pen electric Tester	Voltage tester	1	Equipment

Tools				
Measurement Tools	Digital Multi Meter	· Digital Multi Meter Voltage Current Resistance-7 functions + 19 ranges to cover DC voltage 200mV to 1kV,	5	Equipment
		· AC voltage 200 V - 750 V,		
		· DC current 200 $\mu$ A - 10 A		
		· Resistance 200 -2 M Ohm and Transistor & diode test.		

<b>Package 4:Power Supply &amp; Accessories and Safety Equipment</b>				
<b>Category</b>	<b>Name</b>	<b>Description</b>	<b>Suggested Quantity</b>	<b>Type</b>
Power Supply & accessories	Glue Sticks	11 mm x 200mm Hot Melt Glue Stick	50	Consumable
Power Supply & accessories	Nuts and Bolts and screw	Various Size 20 each	20	Consumable
Power Supply & accessories	Cable Tie	Small , Medium, Big in pack of 100 each	3	Consumable
Power Supply & accessories	Sand Paper	Various Grit-80 4pcs 100 4pcs 120 4pcs	12	Consumable
Power Supply & accessories	Power Strip Adaptors	5 Plug with Safety Fuse Standard Quality Extension, 3m wire	10	Consumable
Power Supply & accessories	Bulb Holders	Regular Hanging Bulb holder	10	Consumable
Power Supply & accessories	Electric Wires	Twisted Red black pair	20 meters	Consumable
Power Supply & accessories	USB TO dc jack cable	USB to DC jack cable for Battery bank	10	Consumable
Safety equipment	Standard first aid kit		1	Consumable
Safety equipment	Fire extinguisher (handy units)	Powder Type Fire Extinguisher 2KG	1	Consumable
Safety equipment	Safety goggles (with/without LED torch)	Safety Goggles for Chemical Splash and Smoke from Soldering	10	Consumable
Safety equipment	Safety Gloves Pairs	Latex Coating Gloves (Medium Size)	3	Consumable

Safety equipment	Safety Mask	Filtering efficiency ranging 80 percent when tested against 0.3-micron sodium chloride particle	10	Consumable
------------------	-------------	---	----	------------

Refer NITI Aayog circular for details and clarification