

GOVERNMENT OF INDIA
MINISTRY OF EDUCATION
DEPARTMENT OF SCHOOL EDUCATION & LITERACY
LOK SABHA
UNSTARRED QUESTION NO. 171
ANSWERED ON 18.07.2022

Robotic Laboratories in Government Schools

171. SHRI SUBRAT PATHAK:
SHRI RAVI KISHAN:
SHRI RAVINDRA KUSHWAHA:
SHRI MANOJ TIWARI:
SHRI BIDYUT BARAN MAHATO:
SHRI SANJAY SADASHIVRAO MANDLIK:
SHRI PRATAPRAO JADHAV:
SHRI DHAIRYASHEEL SAMBHAJIRAO MANE:
SHRI SHRIRANG APPA BARNE:
SHRI SUDHEER GUPTA:

Will the Minister of EDUCATION be pleased to state:

- (a) whether the Government proposes to build robotic laboratories in 14 Government schools in Union Territories including NCT of Delhi and Chandigarh to raise the educational standard in Government schools in the country and NCT of Delhi;
- (b) if so, the details thereof;
- (c) whether the Government has sanctioned and released any funds in this regard and if so, the details thereof and if not, the time by which it is likely to be released;
- (d) the details of facilities likely to be provided by the Government in these labs;
- (e) whether the Government proposes to set more such robotic labs in the country and if so, the details thereof, UT-wise and location-wise; and
- (f) the time by which such labs are likely to be set up?

ANSWER

MINISTER OF STATE IN THE MINISTRY OF EDUCATION
(SHRIMATI ANNPURNA DEVI)

(a) to (c): Education is in the concurrent list of the Constitution and majority of the schools are under domain of respective State and UT Government. Department of School Education and Literacy has launched the Samagra Shiksha— an Integrated Scheme for School Education from 2018-19. It envisages the ‘school’ as a continuum from pre-school, primary, upper primary, secondary to Senior Secondary levels. It is an overarching programme for the school education sector extending from pre-school to class XII and aims to ensure inclusive and equitable quality education at all levels of school education. Samagra Shiksha is implemented in partnership with all the States and UTs and financial assistance is provided to all States and UTs for various components including strengthening of ICT infrastructure in schools.

In the Project Approval Board of Samagra Shiksha for UT of Chandigarh for the year 2022-23, 14 schools in each of the clusters have been approved for establishing Robotic Labs @ Rs. 6.50 lakh to provide Hands on learning and promote critical thinking among students. In the Project Approval Board of Samagra Shiksha of NCT of Delhi for the year 2022-23, 260 schools @ Rs. 2.00

lakh have been recommended for setting up Robotic programme in the existing computer labs by providing Robotic kits and hands on training to students.

(d) Each Robotics lab will have of following components:

- Robot Kit: to understand practical concept of Science and by learning by doing approach where students will be facilitated with hands on experiments.
- DIY Circuit Kits: It helps students to understand basic laws circuits in physics.
- Programming Kit: It Helps students to shuffle their thoughts in various sectors of robotics and help finding its applications through programming skills and Coding.
- Mechanical Construction Set: These are add-ons to the DIY kits which will help students to move on to the next level.
- 3D Printer & pen: It helps students to physically see and observe the designs made by them over CAD software.
- Mechanical Fabrication Tools: It helps students to fabricate their designs with the help of pliers, tools, clamps, hacksaws etc.
- IoT, Solar, AI, Drone etc.
- Safety equipment and more: There are safety equipment kept in lab to ensure safety during project making and prototyping. There are many items to complement the Robotics Kit like wires, ICS, LEDs etc.

Infrastructure facilities:

- 4-5 Worktables of size 5ft x 2.5ft (Can be rectangle or round tables)
- Computer Table & 3-4 Computers with Internet (Config of computer shall be minimum i3 Processor, 4 GB RAM, 500 GB HDD)
- 40 Stools/Chairs for Students and 1 Chair for Teacher
- Bookshelves, Almirah, Robotics Model Showcase Cabinet and Storage Racks
- Electricity Plugs on Worktables, Extension Boards
- Projector with 30 Watts Speakers, 6 x 4 sq feet White Board, Projector Screen and Notice Board.

(e) & (f): NEP 2020 recommends adoption and extensive use of Technology using Learning by Doing based approach with the convergence of technologies. It has become imperative to integrate all possible information and communication technologies. Additionally, focus will be on 4C's of 21st century skills (including Critical Thinking, Communication, Collaboration and Creativity including Design-thinking based Innovation approach to connect Curriculum with real life scenario. This will be key to the widespread infusion of technology enabled practices in the school system. It will also help students with the concept of innovation and interactive learning process and results not only in better concept framing and better education but in the levels of enhanced performance and learning levels as well.

States/UTs may include such proposals in their Annual Work Plan & Budget (AWP&B) of Samagra Shiksha aligned to NEP suggestions, which will be apprised in the Project Approval Board (PAB) of Samagra Shiksha based on the feasibility and scalability and recommended accordingly.
