

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS**

**LOK SABHA
UNSTARRED QUESTION NO. 3942
TO BE ANSWERED ON 18.03.2020**

NATIONAL RAIL AND TRANSPORTATION INSTITUTE

3942. SHRIMATI KIRRON KHER

Will the Minister of RAILWAYS be pleased to state :

- (a) whether the Government is planning to develop new age technologies, including Internet of Things, big data and artificial intelligence to improve safety, punctuality and line capacity of the train operations and if so, the details thereof;**
- (b) the fund allocated so far for the National Rail and Transportation Institute, Vadodara;**
- (c) the details of courses that will be introduced in the National Rail and Transportation Institute; and**
- (d) the steps taken by the Government to boost research and development work to improve overall operations of the Indian Railways?**

ANSWER

**MINISTER OF RAILWAYS AND COMMERCE & INDUSTRY
(SHRI PIYUSH GOYAL)**

(a) to (d): A Statement is laid on the Table of the House.

STATEMENT REFERRED TO IN REPLY TO PARTS (a) To (d) OF UNSTARRED QUESTION NO.3942 BY SHRIMATI KIRRON KHER TO BE ANSWERED IN LOK SABHA ON 18.03.2020 REGARDING NATIONAL RAIL AND TRANSPORTATION INSTITUTE

(a) Yes Sir. Technologies including Internet of Things (IoT), Big Data and Artificial Intelligence are being used for modernisation of Signalling systems. Remote Condition Based Monitoring using non-intrusive sensors, Data Logger system, Electronic Interlocking Stations, Mobile Train Radio Communication (MTRC), are being introduced. The use of this technology enables prediction of signalling assets failures and enhances reliability of Signalling System. Further, MTRC based on Long Term Evolution (LTE-4G) is planned to be extended to cover all major routes over Indian Railways. LTE over Indian Railways will work as backbone of train control & train protection system and will provide secure, always available and reliable voice, video and data communication services to support the communication needs for operational and other requirements of Rail Network. Indian Railways is also working on various way side fault detection technologies which are based on internet of Things, big data and artificial intelligence to improve safety, punctuality and line capacity. Some of the specifications based on these technologies like Smart Yard, Machine Vision Based Inspection System, Hot Axle and Hot wheel Detector System, Bogie Condition Monitoring System & Wheel Impact Load Detector System have already been issued. These and other new age technologies capture train running information & update Control Office Application automatically at the central server to provide real time status of arrival and departure of trains to provide information to improve safety, punctuality and line capacity of train operations.

(b) ₹ 30 crores have been allocated in FY 2020-2021.

(c) Two(2) B.Tech courses and six(6) Masters programs shall be introduced in AY 2020-2021.

(d) Research, Design and Standards Organisation (RDSO) is focusing on research and development work in coordination with academia and industry to improve Railway operation. MoUs with eminent Institutes viz. IIT/Chennai, IIT/Kanpur, IIT/Roorkee, University of Mumbai, and IIT/Kharagpur have also been signed to boost research and development work to improve overall operations of the Indian Railways. A Centre of Excellence on Next General Transportation Systems to develop activity in research, education & training, knowledge transfer etc. has been launched in collaboration with the University of Birmingham, UK. Development of several new Technologies like TCAS (Train Collision Avoidance System), Fog Pass, Fog Vision, Online Monitoring of Rolling Stock etc. has been taken up.
