GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT AND ENTREPRENEURSHIP
RAJYA SABHA
UNSTARRED QUESTION No-3594
ANSWERED ON-02/04/2025

SKILL DEVELOPMENT AND TRAINING UNDER DIGITAL INDIA

3594. SHRI SANJAY SINGH:

Will the Minister of SKILL DEVELOPMENT AND ENTREPRENEURSHIP be pleased to state:

(a)   whether Government is aware that industries are facing difficulties in recruiting skilled workforce due to a shortage of trained manpower in Artificial Intelligence, Machine Learning and other emerging technologies;

(b)   if so, whether Government has launched any specialized training programmes under the Digital India Mission to provide such advanced technological skills; and

(c)   whether Government has ensured that digital skilling programs reach rural and backward areas so as to equip the youth with skills aligned with the requirements of the digital era?

ANSWER

THE MINISTER OF STATE (INDEPENDENT CHARGE) IN THE MINISTRY OF SKILL DEVELOPMENT AND ENTREPRENEURSHIP

(SHRI JAYANT CHAUDHARY)

(a & b) Government is making concerted efforts to align the skill development training and programmes with the industry demand. Some of the initiatives taken by the Ministry of Skill Development and Entrepreneurship in providing training in the field of emerging technologies are given as below:

I.   Directorate General of Training (DGT):

DGT, under the Ministry of Skill Development and Entrepreneurship (MSDE), implements the Craftsmen Training Scheme (CTS) through a network of Industrial Training Institutes (ITIs) for the youth of the country. In ITIs, craftsmen training is provided in 168 NSQF aligned trades, including 31 new-age/Future Skills courses such as Drones, Artificial Intelligence, Robotics Mechatronics, Internet of Things, Cybersecurity, 5G, digital skills and Semiconductors for skilling and upskilling of youth. This training is provided through a network of ITIs and National Skill Training Institutes (NSTIs) under the CTS to equip youth with technical skills across the country as well as to cater the skilled manpower needs of the industry. List of new age courses
/Future Skills under CTS is placed at **Annexure-I**.

In addition, the syllabus of subject 'Employability Skills' in CTS courses has been revised. The areas covered for development of soft skills and entrepreneurial skills such as Entrepreneurship, Basic English Skills, Communication Skills, Essential Digital Skills, and Financial & Legal Literacy. Trade-Artificial intelligence under CTS is being run in 19 NSTIs. State -wise detail of trade running in NSTIs with intake capacity is placed at **Annexure-II**.

II.   Flagship Schemes of MSDE

(i)   Pradhan Mantri Kaushal Vikas Yojana (PMKVY)

MSDE has been successfully implementing PMKVY, since 2015, to provide skill development training. Under PMKVY 4.0, the latest version of the scheme under implementation since FY 2022-23, 400+ new courses has been introduced in emerging technologies such as Artificial Intelligence (AI), Machine Learning, 5G Technology, Cybersecurity, Green Hydrogen, and Drone Technology etc. This initiative ensures that training programs remain aligned with evolving industry demands and advancements in new-age technologies. As part of PMKVY 4.0, details of key job roles in these technologies, along with the number of individuals trained as of 31.12.2024 and details are given at **Annexure-III**

(ii)   National Apprenticeship Promotion Scheme (NAPS)

NAPS launched in August, 2016 aims to promote apprenticeship training in the country. The Scheme was extended to continue as NAPS-2 from 2022-23 and promotes apprenticeship training throughout the country, by providing partial stipend support to the apprentices engaged under the Apprentices Act, 1961 and the Rules thereunder. Under, NAPS-2, the stipend support by the Government of India is paid through Direct Benefit Transfer (DBT) to the bank account of apprentices. There are 260+ designated trades and 750+ optional trades of which trades that cater to Artificial Intelligence, Machine Learning and other emerging sectors are available and details are given at **Annexure-IV**.

(iii)   Jan Shikshan Sansthan (JSS)

The JSS, initially launched as Shramik Vidyapeeth (SVP) in 1967, aims to provide skill training in a non-formal mode at the doorsteps of the beneficiary through registered Societies (NGOs) with 100% grant from the Government of India. The objective of the scheme is to increase the household income by promoting self/wage employment through skill development training. The main target of the JSS is to impart vocational skills to the non-literates, neo-literates and persons having rudimentary level of education up to 8th standard and school dropouts up to 12th standard in the age group of 15-45 years.

The courses offered in the JSS are a blend of technical and employability skills. Digital Literacy and employability skills are also incorporated in the course curriculum. Under the JSS scheme, 1,18,598 candidates have been trained in the Assistant Computer Operator Job role in IT-ITES sector from FY 2018-19 to FY 2024-25 (till 28th February 2025). Details are placed at **Annexure-V**.

(c)   MSDE has launched the Skill India Digital Hub (SIDH) platform on 13th of September, 2023 to ensure that the youth of the country can access the advanced learning courses. The Government has partnered and onboarded various learning partners, such as, Microsoft, Intel, GUVI, Reliance Foundation, Upgrad, GO BPO, etc. on SIDH Platform to provide courses in Artificial Intelligence, Machine Learning and other emerging technologies.

The Skill India Digital Hub (SIDH) platform hosts a wide range of online learning courses, ensuring that learners have access to a repository of content across multiple domains. The available courses ensure that the users upskill and reskill themselves in alignment with industry demands. One of the key features of SIDH is its self-paced learning approach, which allows users to enroll in courses based on their aspirations, interests and career goals. Learners can explore, access, and download a comprehensive repository of learning resources, ensuring they can continue learning even without an active internet connection. This offline access feature makes SIDH particularly beneficial for students in remote and rural areas, where internet connectivity is inconsistent. SIDH ensures anytime, anywhere learning, providing flexibility for

students and job seekers to enhance their skills at their convenience.

The PMKVY Scheme offers Short-Term Training (STT) and upskilling and reskilling through Recognition of Prior Learning (RPL) to youth across the country, including rural and backward areas. The primary aim is to enhance employability by equipping individuals with industry-relevant skills, enabling them to access better employment opportunities.

India AI, under the Ministry of Electronics and Information Technology (MeitY), has set up Data Labs at NIELIT's Delhi center and ICIT, Nagaland, with plans to establish 27 more labs in collaboration with NIELIT across Tier 2 and Tier 3 cities and initiated the process of setting up India AI Data labs in Govt. ITIs that cover rural and backward areas.

ANNEXURES REFERRED TO IN REPLY TO PART (a & b) OF THE RAJYA SABHA UNSTARRED QUESTION NO. 3594 ANSWERED ON 02.04.2025 REGARDING "SKILL DEVELOPMENT AND TRAINING UNDER DIGITAL INDIA"

List of New Age / Future Skill Courses Under Craftsmen Training Scheme (CTS)

Sr.	Name of Trade	Duration	NSQF Level
1.	**5G Network Technician**	**One year**	**4.5**
2.	Additive Manufacturing (3D Printing) Technician	Two Year	3.5
3.	Aeronautical Structure and Equipment Fitter	Two Year	4
4.	**Artificial Intelligence Programming assistant**	**One year**	**3.5**
5.	CNC machining Technician	Two Year	4
6.	Computer Aided Manufacturing (CAM) Programmer	One year	3.5
7.	**Cyber Security Assistant**	**One year**	**3.5**
8.	Data Annotation Assistant	One year	3.5
9.	Drone Pilot (Junior)	Six Month	3
10.	Drone Technician	Six Months	3
11.	Engineering Design Technician	One year	3.5
12.	Fiber to Home Technician	Six months	3
13.	Geo Informatics Assistant	One year	3.5
14.	Green Hydrogen Production Technician	One Year	3.5
15.	Industrial Internet of Things (IIoT) Technician	Two Years	4.0
16.	**Industrial Robotics and Digital Manufacturing**	**One year**	**3.5**
17.	Information Technology	Two Year	4
18.	Internet of Things Technician (Smart Agriculture)	One year	3.5
19.	Internet of Things Technician (Smart City)	One year	3.5
20.	Internet of Things Technician (Smart Healthcare)	One year	3.5
21.	Manufacturing Process Control & Automation	One year	3.5
22.	Mechanic Electric Vehicle	Two Year	4

23.	Multimedia, Animation & Special Effects	One year	3.5
24.	Semiconductor Technician	One Year	4.5
25.	Small Hydro Power Plant Technician	Two Year	4
26.	Smartphone Technician Cum App Tester	6 Months	3.5
27.	Software Testing Assistant	One year	4.5
28.	Solar Technician (Electrical)	One year	3.5
29.	Technician Mechatronics	Two Year	4
30.	Virtual Analysis and Designer - FEM (Finite Element Method)	Two Year	4
31.	Wind Plant Technician	Two Year	4

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State -wise detail of trades running in NSTIs with intake capacity

Sr.	Name of the State	Name of the Institute	Intake capacity	Admission Session (2024-25)
1.	Bihar	National Skill Training Institute for Women, Patna	24	15
2.	Gujarat	National Skill Training Institute for Women, Vadodara	24	24
3.	Kerala	National Skill Training Institute, Calicut	24	24
4.	Karnataka	National Skill Training Institute, Bengaluru	24	20
		National Skill Training Institute for Women, Bengaluru	24	16
5.	Madhya Pradesh	National Skill Training Institute for Women, Indore	24	24
6.	Maharashtra	National Skill Training Institute, Mumbai	24	24
		National Skill Training Institute for Women, Mumbai	24	24
7.	Punjab	National Skill Training Institute, Ludhiana	24	13
8.	Rajasthan	National Skill Training Institute, Jodhpur	24	19
		National Skill Training Institute for Women, Jaipur	24	24
9.	Tamil Nadu	National Skill Training Institute, Chennai	24	24
10.	Telangana	National Skill Training Institute - Ramanthapur Hyderabad	24	24
		National Skill Training Institute for Women, Hyderabad	24	24
11.	Uttar Pradesh	National Skill Training Institute, Kanpur	24	24
		National Skill Training Institute for Women, Noida	48	43
		National Skill Training Institute for Women, Allahabad	24	24
12.	West Bengal	National Skill Training Institute, Howrah	24	24
		National Skill Training Institute for Women, Kolkata	24	24
	Total		**480**	**438**

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Details of key job roles under PMKVY 4.0

Sr.	Job Role Name	Trained / Oriented	Certified
1	Additive Manufacturing (3D Printing)	6,485	4,741
2	AI - Business Intelligence Analyst	1,245	287
3	AI - Data Architect	575	389
4	AI - Data Engineer	997	364
5	AI - Data Quality Analyst	3,888	1,870
6	AI - Data Scientist	3,450	944
7	AI - Database Administrator	5,329	2,730
8	AI - DevOps Engineer	651	259
9	AI - Machine Learning Engineer	2,884	717
10	AI - Solution Architect	241	115
11	Analyst Application Security	30	3
12	Analyst Security Operations Centre	73	0
13	Application Architect - Web & Mobile	291	81
14	Application Developer - Web & Mobile	10,364	4,889
15	AR/VR Consultant	240	0
16	AR/VR Infrastructure Engineer	30	29
17	AR/VR Support Analyst	524	298
18	Automotive Additive Manufacturing Operator	230	64
19	Automotive Additive Manufacturing Technician	60	0
20	Automotive Automation and Robotics Engineer	357	129
21	Automotive IIOT Application Engineer	80	0
22	Automotive IIOT Application Technician	300	196
23	Battery System Assembly Operator	1,512	1,002
24	Battery System Design Engineer	447	221
25	Battery System Repair Technician	10,598	6,650
26	Bioinformatics Associate/ Analyst	2,229	1,020
27	Bioinformatics Scientist	4,789	887
28	Building Management System Project Manager	1,350	44
29	Cloud Administrator	499	220
30	Cloud Application Developer	2,069	383
31	Cloud Consultant	168	102
32	Cloud Infrastructure Analyst	42	37

33	Cloud Security Analyst	360	84
34	Consultant Network Security	60	0
35	Drone Manufacturing and Assembly Technician	7,123	4,223
36	Drone Service Technician	14,001	6,474
37	Electric Vehicle Assembly Operator	460	237
38	Electric Vehicle Assembly Technician	424	217
39	Electric Vehicle Maintenance Technician	584	273
40	Electric Vehicle Product Design Engineer	160	5
41	Electric Vehicle Quality Control Inspector	300	175
42	Electric Vehicle Service Lead Technician	30	11
43	Electric Vehicle Service Technician	48,404	27,487
44	Electric Vehicle Test Engineer	231	21
45	Electronic Hardware Assembly Operator	9,148	5,234
46	Electronics Machine Maintenance Executive	21,381	14,066
47	Embedded Full-Stack IoT Analyst	350	149
48	Embedded Product Design Engineer-Technical Lead	90	40
49	Embedded Software Engineer	818	471
50	Information and Communication Technology (ICT) Engineer - 5G Networks	150	123
51	Infrastructure Technician - 5G Networks	1,178	749
52	IoT - Domain Specialist	157	36
53	IoT - Network Specialist	182	22
54	IoT - Product Manager	354	25
55	IoT - Security Specialist	154	0
56	IoT - Software Analyst	2,063	528
57	IoT - Solution Architect	4,873	2,150
58	IoT - Test Analyst	180	150
59	IoT Hardware Analyst	2,876	1,138
60	Kisan Drone Operator	2,909	96
61	Mechanical Engineering and Plumbing General Manager	5,438	1,171
62	Mechatronics Designer and System Integrator	30	0
63	Mechatronics Maintenance Specialist	75	66
64	Mobile Device Management Analyst	305	38
65	Motor & Controller Repairing Technician	629	283
66	Motor and Controller Design Engineer	570	387
67	O&M Electrical & Instrumentation Technician- Wind Power Plant	185	0
68	Product Manager - Web & Mobile	608	25
69	Project Engineer - 5G Networks	2,381	1,478
70	Rooftop Solar Grid Engineer	909	747
71	Security Analyst	118	9

72	Small Hydro Power Plant Technician-(Jal Urja Mitra)	150	92
73	Software Vulnerability/Penetration Tester	240	0
74	Solar LED Technician	35,548	20,493
75	Solar Lighting Assembler (Elective: Home Lighting System/ Street Lights)	5,250	3,954
76	Solar Photovoltaic Entrepreneur	2,205	1,553
77	Solar Proposal Evaluation Specialist	360	273
78	Solar Pump Technician	31,345	20,900
79	Solar PV Business Development Executive	626	104
80	Solar PV Designer	2,230	1,332
81	Solar PV Engineer (Option: Solar Water Pumping System)	30	0
82	Solar PV Installer - Civil	508	245
83	Solar PV Installer - Electrical	4,283	2,714
84	Solar PV Installer (Suryamitra)	21,764	13,786
85	Solar PV Maintenance Technician - Electrical (Ground Mount)	1,839	1,057
86	Solar PV Manufacturing Technician	359	220
87	Solar PV Project Helper	1,655	1,212
88	Solar PV Project Manager (E&C)	187	123
89	Technician 5G - Active Network Installation	18,422	8,519
90	Telecom E-Waste Handler	2,313	1,521
91	Telecom Rigger - 5G and Legacy Networks	2,238	1,148
92	Telecom Technician - IoT Devices/Systems	26,194	15,066
93	User Experience Designer	163	97
94	VLSI Design Engineer	2,779	733
	Total	**352,963**	**192,201**

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Details of the sectors, number of apprentices engaged and establishments

Emerging Sectors	Number of apprentices engaged (from FY 2018-19 till FY 2024-25 (as on 28.02.2025)	Number of establishments (from FY 2018-19 till FY 2024-25 (as on 28.02.2025)
Artificial Intelligence	972	87
Machine Learning	10	6
Cybersecurity	45	15
Green Jobs	7,526	197

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Sector-wise details of JSS trained

Sector	Job Role	FY	Candidates Trained
IT- ITES	Assistant Computer Operator	2024-25*	34,542
		2023-24	15,840
		2022-23	26,473
		2021-22	11,389
		2020-21	11,044
		2019-20	13,722
		2018-19	5,588
Total			**1,18,598**

*Data till 28th February, 2025

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