

GOVERNMENT OF INDIA
MINISTRY OF ELECTRONICS AND INFORMATION TECHNOLOGY
LOK SABHA
UNSTARRED QUESTION NO. 4084
TO BE ANSWERED ON: 12.08.2026

SKILL GAP IN SEMICONDUCTOR MANUFACTURING SECTORS

4084. SHRI SUNIL BOSE:

Will the Minister of ELECTRONICS AND INFORMATION TECHNOLOGY be pleased to state:

- (a) the current status of the implementation of the five semiconductor projects approved under the India Semiconductor Mission (ISM) including their expected timelines for completion;
- (b) the details of specific measures undertaken by the Government to address the skill gap in the semiconductor manufacturing sector including collaborations with Indian Institutes of Technology (IITs), private colleges and international training facilities;
- (c) the strategies in place to develop a local talent pool skilled in the production of speciality materials, gases, substrates and related equipment for the semiconductor ecosystem
- (d) the expected outcomes of the Rs. 76,000-crore outlay under the ISM in terms of creating a diversified and resilient semiconductor supply chain; and
- (e) the details of steps being taken by the Government to ensure timely execution of the approved projects and their alignment with India's goal of achieving self-reliance in the semiconductor industry?

ANSWER

MINISTER OF STATE FOR ELECTRONICS AND INFORMATION TECHNOLOGY
(SHRI JITIN PRASADA)

(a) to (e): Recognising the importance of semiconductors, the Government launched Semicon India Programme in January 2022 for setting up of semiconductor fabs, display fabs semiconductor packaging and also for promotion of India designed chips. Under this programme, the Government has approved 12 manufacturing projects with total investment commitments of about ₹1.64 lakh crore. Out of these 12 projects, commercial production has already started from 3 units. The remaining projects are in various phases of implementation.

India has adopted a multi-pronged approach to build a robust semiconductor talent pipeline as a part of Semicon India Programme, more recently, Semicon 2.0. The objective is to create a workforce capable of supporting the entire semiconductor value chain from chip design and fabrication to assembly, testing, marking and packaging (ATMP).

Infrastructure Provisioning and Curriculum Development:

One of the important focuses of the government has been to integrate semiconductor education curriculum in engineering institutes and colleges. To advance this government has taken following initiatives:

- i. The Government launched Chips to Startup (C2S) programme to provide industry ready manpower in chip design. Under this programme, access to cutting-edge chip design tools has been provided at no cost to 332 academic institutions. The State-wise list of organizations supported for EDA tools by the ChipIN Centre under C2S Programme is at https://c2s.gov.in/EDA_Tool_Support.jsp. So far, the usage of these chip design tools has exceeded 240 lakh hours. So far, ~68,000 persons have been trained and 175 designs taped out from SCL Mohali.
- ii. A Skilled Manpower Advanced Research and Training (SMART) Lab has been set up in NIELIT Calicut with an aim to train 1 lakh engineers in the domains of VLSI, Embedded Systems and IoT. More than 1 lakh candidates have already been trained
- iii. A Committee was constituted with the representatives from semiconductor industry, academia and Government to develop a roadmap for "India as a Semiconductor Talent Nation". The "Semicon India Future Skills Talent Committee Report" was submitted by the Committee. Based on the committee report and recommendation of MeitY, All India Council for Technical Education (AICTE) has launched the new curriculum for UG, Diploma, Minor Degree in Semiconductor domain, as a step towards creation of Talent pool in Semiconductor domain.

Semiconductor fabrication and ATMP Skilling:

Similarly in the area of semiconductor fabrication and ATPM/OSAT, the government has taken following initiatives to build the talent pipeline in semiconductor manufacturing:

- i. The project titled "Setting up of Semiconductor Assembly & ESD Training Laboratory at NIELIT Guwahati", has been approved by MeitY. The project aims to establish a state-of-the-art Semiconductor Assembly, Testing, Marking and Packaging (ATMP) training facility to support the growing semiconductor manufacturing ecosystem, particularly the upcoming semiconductor manufacturing initiatives in the North Eastern Region.
- ii. ISM has also partnered with Lam Research for conducting a large-scale training programme in nanofabrication and process-engineering skills. These would further augment skilled workforce for ATMP and advanced packaging. The program aims to generate 60,000 trained manpower in 10 years.

Industry partnerships:

The Government has also partnered with the industry for upgradation of skills in semiconductor technologies to provide industry grade skills. These include:

- i. Under the FutureSkills PRIME programme, implemented by MeitY in partnership with NASSCOM, online courses are offered for skilling, reskilling and upskilling in emerging technologies including semiconductors.
- ii. MoU between ISM and NAMTECH: This MoU aims to build India's semiconductor workforce pipeline by training approximately 5,000 professionals over the next five years. MoU involves developing structured certification programs jointly endorsed by ISM to ensure national and international recognition; facilitating faculty exchange and global collaboration through ISM-linked partners; creating student internship and apprenticeship opportunities across ISM-supported fabs, ATMPs, OSATs, and design houses.
- iii. MoU with IBM: Establishes a semiconductor research centre in India, focusing on R&D, IP sharing, chip prototyping, and innovation across advanced semiconductor technologies.

Semicon 2.0:

The approved projects under the Semicon India Programme have generated demand for an upstream supply chain. To further promote atmanirbharta and build a robust supply chain, the Union Cabinet, under the vision of Hon'ble PM, has approved Semicon2.0 on 15.07.2026 with an outlay of ₹1.275 lakh crore. Semicon 2.0 is built on following six pillars that encompass all aspects of the semiconductor ecosystem:

	Pillars	Segment
1	Design of Chips	Strategic & commercial chips
2	Machines and materials	Equipment, chemicals, gases, materials
3	Setting up more Fabs	Silicon, display, compound etc.
4	Further strengthening the ATMP/OSAT industry	Advanced & legacy packaging
5	Research & Development	Advanced technologies
6	Talent Development	Design & manufacturing talent

Steps taken for timely execution of approved projects:

The Government has put in place a comprehensive project governance and monitoring framework to ensure timely execution of approved semiconductor projects. The key measures are as follows:

- i. The Government has created a dedicated agency in the form of ISM, to act as a nodal agency for the semiconductor policy framework. ISM has been mandated not only to facilitate the investment, but also to ensure the timely implementation of the approved projects.
- ii. ISM has recently launched “Investors Support” portal to provide information relating to Government schemes, policies, approved projects under Semicon India Programme, regulatory requirements etc. This portal serves as a single-window platform for information facilitation and support to investors. The portal provides an end-to-end online grievance redressal and coordination mechanism by enabling users/investors to submit, track, and monitor their grievances/concerns/queries through a centralized platform.
- iii. Legally Binding Fiscal Support Agreement (FSA): India Semiconductor Mission (ISM) enters into a legally binding Fiscal Support Agreement with each approved applicant. The agreement clearly defines project milestones, timelines, and obligations, making adherence to these milestones contractually binding on the project company.
- iv. Regular reporting of physical and financial progress by the approved project companies on quarterly basis.
- v. Project Management Consultancy (PMC): ISM has onboarded a Project Management Consultancy (PMC) to provide project monitoring and oversight. The PMC deploys onsite consultants at project locations for day-to-day monitoring, identification of implementation challenges, and reporting to ISM.
