

World Class Talent Capacity for Global Semiconductor Ecosystem

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India needs Skills beyond Design for its Semiconductor Ecosystem...



BE *the* **BRIDGE**

- Enabling semiconductor sector requires enabling semiconductor supply-chain ecosystem
 - » Needs process engineers (CVD , ALD, CMP, ...)
 - » Need hardware operators (Wire-bond operators; dicing operators...)
 - » Needs materials engineers
 - » Specialty Gas handlers, sub fab engineers
 - » safety inspectors
 - » Manufacturing and engineering skills

Global shortage of 300,000 engineers over next 4 years as per SEMI.

Semiconductor Equipment Manufacturing/
Engineering Skills required –AMAT India projects a requirement of ~2000 nos in 3 years – 5000 by 2030

Programs to build Talent Capacity....

WORKFORCE DEVELOPMENT

The Key to Prosperity in the 21st Century



- Focus on
 - » Semiconductor Ecosystem Skills
 - » Semiconductor Equipment Manufacturing Skills
 - » Semiconductor manufacturing skills - design is good but manufacturing is neglected
- Build a global Semiconductor Skill Brand from India
 - » Align with SEMI ASA skilling standards
 - » Review contributing content to ASA- evolve program
- Work with ESSCI-NIELET to build April 25 recommendation of a Talent Pipeline Mgt System for Industry Need-Training Provider fulfilment management
- Work with MEITY-ESSCI to build institutes in a balanced manner for industry projects:
 - » MEITY plans to fund 130 institutes with the development kits (Design licenses + Dev Boards) and 30 institutes were announced in phase 1 at DAC, Gandinagar in wk 1
- Metrics:
 - » Do a handful institutes pilot for 6 mths (start say 1st Oct, till March'23) - then scale – ultimately touch 130 institutes...

April 25 IITD Workshop: Enabling People Capacity for Semiconductor Ecosystem

April 25 IITD Workshop: Enabling Semiconductor Ecosystem: People Capacity Enablers

Expected Outcomes...

1. Increased collaboration/links between industry, academia for right skill standards with alignment of skill pipelines
2. Review skill for semi ecosystem – from Design-to- Die-to- Device – Demand (System Integration)
3. Growth in # of university and college faculty with Semi specialization
4. Development of strategic continuous learning programs with multiple on-ramp paths
5. Optimizing hourly usage of faculty resources for training/ optimizing existing lab/ faculty infra
6. Development of content repositories/expansion of new multimedia teaching tools / resources
7. Availability of software design tools for students at low/ no –cost; growth in hands-on learning opportunities
8. Increased # of student projects taping out/ startups
9. Optimized flow of skilled workforce pipeline to industry

Common Threads

- Start with a clear idea on the key market objectives – build industry connects for demand fct by skills with appropriate flexibility to enable job portability
- Build relevant best-in-class partnerships /MOUs across the ecosystem for content, for training delivery (SEMI –ASA- ESSCI India Semiconductor Academy etc)
- Invest in core faculty to be trained abroad , if required
- Review skilled force creation – from universities – and from industry , thru appropriate ramp-on programs
- Create a Talent Pipeline management system from end-industry input of forecast to pipeline forecast over time to skill output and placement program with metrics of placement < 90 days
- Training process to focus on hands-on, focus on creating an optimized hub-n-spoke Centre of Excellence network for maximum efficacy
- Minimize rework by creating reusable, shared content repositories
- Use well what is available/Leverage public (State-Central govt) – private (industry) partnership models to achieve scale
- Measure performance at every stage vs targets/timelines

What are your Enabler Goals?

Quantitative Goals (People Skills, Numbers, Startup Skills, Numbers)

Moon Shot Goals (breakthrough performance in telecom, fitech, automotive, life-sciences)

Design Talent

- EDA Basic
- EDA Advanced
- EAD Package.

Proof PT - Industry

Design startup 10X to 500 by 2025

Industry Talent Pipe (forecast to talent fulfilment pipe) 100% Global Placement in 3 month of Graduation.

COE Design

Incubator

Accelerator

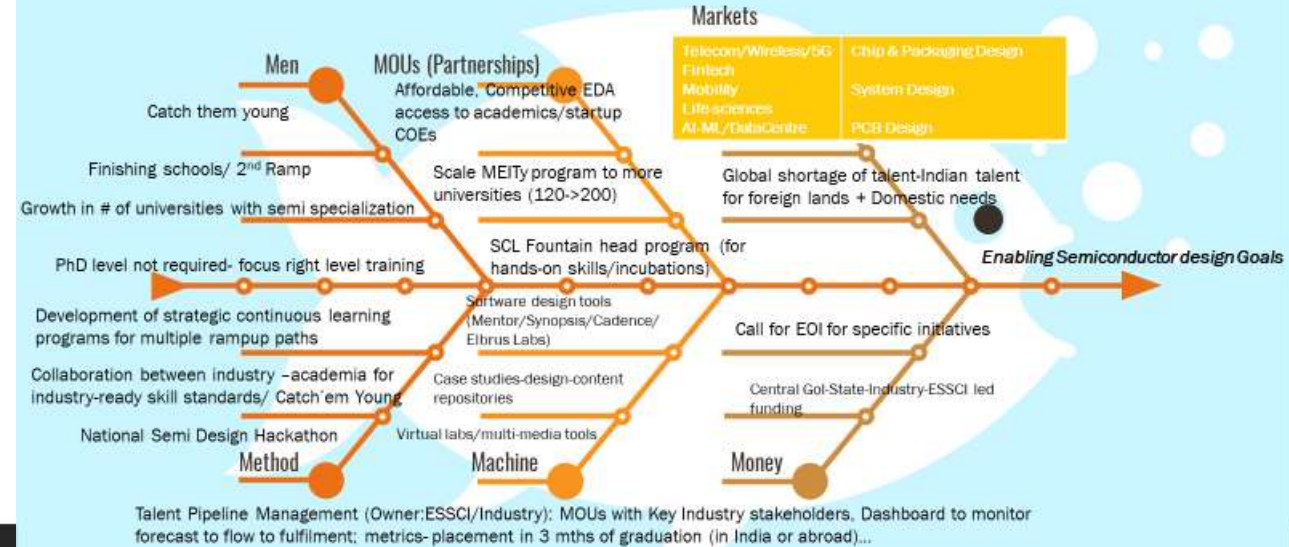
50 Unicorns in Design and Semiconductors by 2025

Sector Strengths (for India Chip Portfolio)

Telecom/wireless, fin tech, Mobility Life Sciences

HUB - Spoke - Implementation to Engage 200 Lead Institutions/Training Providers across India.

FISHBONE Plan to Goal Enablers



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WBG Talent (Materials/Process)

Materials #

Process #

Proof PT Industry

WBG Startups XX by 2025

Industry Feed w/ 100% Global Placement in 3months of graduation/

GEEC

Incubator

Accelerator

HUB-spoke - Implementation to Engage 100 Lead Institutions across India

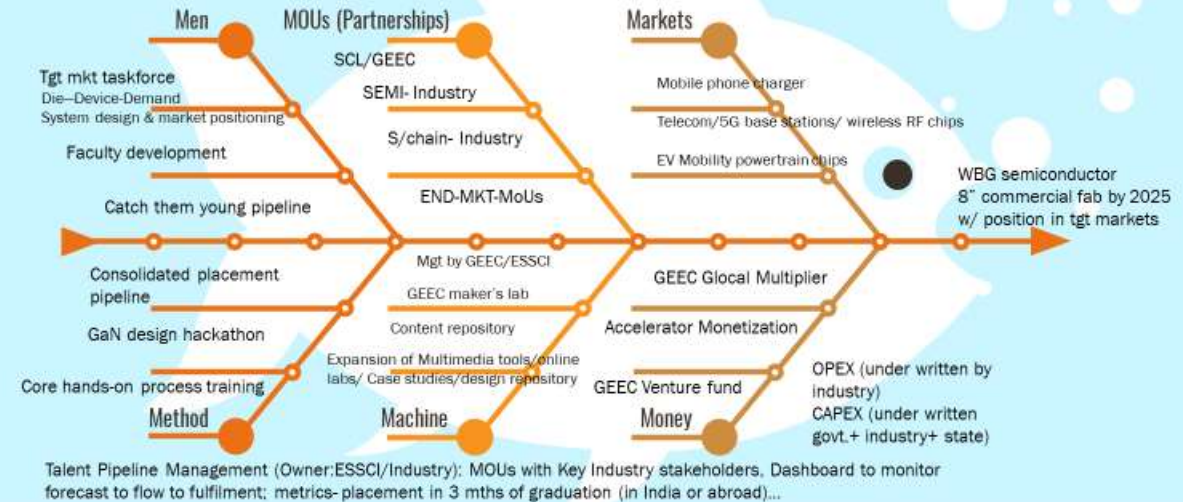
Expand GEEC (10 WSPD capacity) to 8" Commercial GaN fab 25-27

w/ xx% indigenization of mobile phone chargers in India

w/ yy% RF chips for telecom/wifi applications/base stations

w/ aa% share of Mobility Powertrain Chips.

FISHBONE Plan to Goal Enablers





Electronics Sector Skill Council of India

- Takes the Job Roles – develops the NOS and QP as per approved taxonomy
- Talent Pipeline Management System for Industry Need- Training Provider Fulfilment management –WIP Elbrus Labs/ Post April 25 IITD workshop
 - » Coordinate with NIELET-MEITY on their talent pipeline management system
 - » Ensure alignment for industry feeds/needs – Indian and Global
- India Skill Brand for Global industry
 - » Build network of training providers
 - » Training Assessment for quality control
 - » Marketing Engine
- Balancing inputs across different associations
 - »





APPLIED
MATERIALS®

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