# Foundation Skills in IT (FSIT)
# A NASSCOM initiative

## Gujarat Technological University (GTU)

**May 2012**

**PROPOSAL FOR IT / ENGINEERING EMPLOYABILITY ENHANCEMENT PROGRAM IN ANDHRA PRADESH – *PILOT EXERCISE***

# BACKGROUND

NASSCOM, in association with the IT industry majors like Accenture, Cognizant, HCL, Infosys, Microsoft, TCS and Wipro (Mission 10X), has developed a skill enhancement program with the related courseware. The objective of this program is to facilitate the development of basic or foundational skills that will help empower students with the essential life and professional skills (both soft skills and technical skills).

The program could be deployed as an 'Add-on' program for undergraduate Engineering students across universities to help bridge the skill gaps that exist in students, to be gainfully employed with the IT / Engineering industry. The skill development program is called Foundation Skills in IT (FSIT)

NAC-Tech, an industry standard skill assessment platform, bundled with FSIT, will identify the level of talent, both pre (NAC-Tech Diagnostic) and post (NAC-Tech Final) FSWIT training. NAC-Tech is designed by the industry, for the industry, for assessment of skills at the entry level.

The document highlights the objective of this 'employability enhancement program' detailing the related modalities, for the same.

# GTU FSIT PROGRAM

### SUBJECT
Training through an industry program leading to enhanced employability, called FSIT.

### OBJECTIVE
Employment facilitation, especially for Tier 2 / 3 colleges

### STAKEHOLDERS / PARTNERS
GTU and NASSCOM

### PROCESS FLOW

**Part-A**

| Action | Pre-Training Test | → | Student Training | → | Post-Training Test | → | Employment Facilitation |
|---|---|---|---|---|---|---|---|
| Tool | NAC-Tech Diagnostic | | FSIT | | NAC-Tech Final | | Score sharing with cos. |

**Part-B**

| Action | (TTT – Train The Trainer) Master Training | 2nd Level TTT | → | Teacher Certification | → |
|---|---|---|---|---|---|
| Tool | *Industry Trainers teaching the select few College faculty* | *Balance faculty members are trained by the master trainers* | | Govt. / Univ. Certified, facilitated by Industry | |

### KEY FEATURES
**TTT (Master Training) / 2nd level TTT**

- Eligibility – Explained in *Annexure-6*
- Industry Trainer-Teacher Ratio – 1:10
- Training Duration – 64hrs (8days x 8hrs per day)

**Student Training**

- Eligibility – Pre-Final / Final year undergraduates (all general / non-technical streams)
- Teacher-Student ratio per batch – 1:30 (max)
- Course duration – 120 hrs./20 weeks (can be supplemented by e-learning courses on a LMS, for self improvement)

**STAKEHOLDERS' ROLE & RESPONSIBILITIES** - Explained in the *Annexure-4*

**TIMELINES -** To be decided between GTU & NASSCOM

**COST FOR A BATCH OF 30 STUDENTS** (*estimate*)

| S. No. | Items | Cost | |
|---|---|---|---|
| 1 | **NAC-Tech Diagnostic test price** | Rs.232 | Rs.6,960<br>*(232 x 30)* |
| 2 | **NAC-Tech Final test price** | Rs.232 | Rs.6,960<br>*(232 x 30)* |
| 3 | **Study material** (revised estimate)<br>- *Student Handbook*<br>- *Facilitator's Guide* | <br>Rs.200 per Handbook<br>Rs.400 per Guide | <br>Rs.6,000<br>*(200 x 30)*<br>Rs.400<br>*(400 x 1)* |
| 4 | **Faculty Fee** | Rs.600 *per 2-hr session*<br>*(Ref: AP FSIT program; to be verified internally by GTU)* | Rs.36,000<br>*(600 x 60)* |
| | | *Total cost* | **Rs.56,320** |

***COST PER STUDENT***

| | |
|---|---|
| Overall estimated cost per student | **=** Rs.56,320/30 Students<br>**= Rs.1877/-** |
| Overall estimated cost per student for Govt. if the student pays for the NAC-Tech Diagnostic OR NAC-Tech Final | **=** Rs.1877-232<br>= **Rs.1645/-** |

**Please refer to the FDP Cycle on Page 7 for details on FDP.**

**DETAILED FINANCIALS #**

**# Assuming 100 students / 03 teachers**

**Part–A**

| Item | Numbers (No) | Unit Cost | No x Unit Cost | Sub Total | Total amount |
|---|---|---|---|---|---|
| **Stage -1** | | | | | |
| **NAC-Tech Diagnostic** | 100 students *(students respond to the FSIT advt. / notice from GTU)* | Rs.232 per student *(exclusive of Infra & proctoring cost because it is to be met by colleges)* | 100 x 232 | | **Rs.23,200** |
| **Stage-2** | | | | | |
| **FSIT Student Training** | | | | | **Rs.1,57,200** |
| Student Training | 3 Teachers *(each teacher to take 2 batches of 30 students each)* - - - - - - - - - - - - *200 teachers x 2 batches x 30 students = 12,000 students* | Rs.300^ per hour | 300 x 120hrs | Rs.36,000 | |
| Cost of Study Material * (estimate) | - 3 teachers<br>- 100 students | Rs.400 per Facilitator Guide<br><br>Rs.200 per Student Manual | 3 x 400<br><br>100 x 200 | Rs.1200<br><br>Rs.20,000 | |
| Promotional material | | | | - | |
| Logistics | | | | Rs.1,00,000 approx. | |
| **Stage-3** | | | | | |
| **NAC-Tech Final** | 100 students | Rs.232 per student *(exclusive of Infra & proctoring cost because it is to be met by colleges)* | 100 x 232 | | **Rs.23,200** |
| | | | | | **Rs. 2,03,600** |

^ *Revised estimate*

* *Printing agency & printing rates to be identified by govt., where NASSCOM shall provide the 'final manuscripts' to the identified agency*

**Part–B**

| Item | Numbers (No.) | Unit Cost | No x Unit Cost | Sub Total | Total amount |
|---|---|---|---|---|---|
| **Part of 'Stage-1 & 3'** (shown above under Part-A table) | | | | | |
| **NAC-Tech Test** | | | | | |
| Test centre infrastructure ^^ | • Hardware<br>• Software<br>• Internet connectivity<br>• Headphones, etc. | To be met by Govt. & Univ. concerned | | | |
| **Part of 'Stage-2'** (shown above under Part-A table) | | | | | |
| **FSIT Teacher / Student Training** | | | | | |
| TOT (Master Training) | 03 Teachers *(to be trained by Industry Trainer/s at a centralised location)* | To be met by Industry | None | None | |
| 2nd level TOT | *Not applicable as no. of teachers are only 3* | - | | | |
| Logistics | TA-DA for Industry Trainer/s | To be met / made available by the Govt. & Univ. concerned | | | |
| Training room / Classroom infrastructure ^^^ | • Classroom<br>• Computers with LAN and WAN<br>• LCD Projector & Screen<br>• Whiteboard<br>• Flip Charts | To be met by Govt. & Univ. concerned | | | |
| | | | | | **Rs. TBD** |

^^ *Infrastructure requirements for the NAC-Tech test (see Annexure-7)*

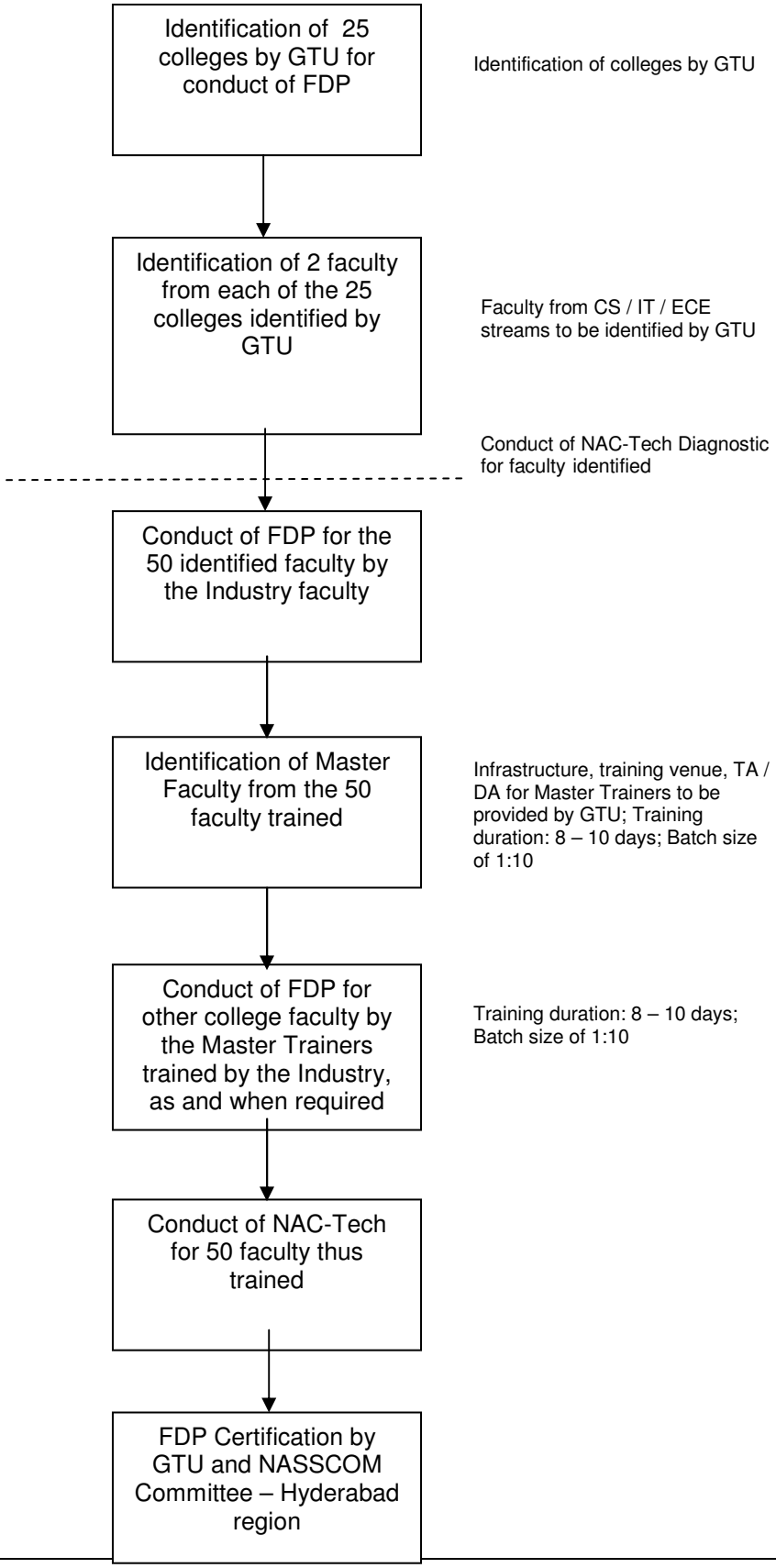
^^^ *Infrastructure requirements for the FSIT training program (see Annexure-5)*

Recommendations:

a. It is advisable that at the introductory stage, GTU / College pays for the FSIT program
b. Multiple cycles of FSIT can be initiated

## FDP CYCLE

The illustration below details the conduct of FDP for 50 faculty.



# PROJECT SUMMARY

## Basic statistics:

| | |
|---|---|
| No. of students who could benefit from the program | 3,000 |
| No. of participant colleges (assuming about 120 students per college) | 25 |
| Total no. of teachers required for FSIT (1:30 Teacher-Student ratio)<br>*Considering 2 batches per teacher* | 50 |
| No. of Industry Trainers required for Training of college faculty (1:10 ratio) | 05 |

**Some models of student training:**

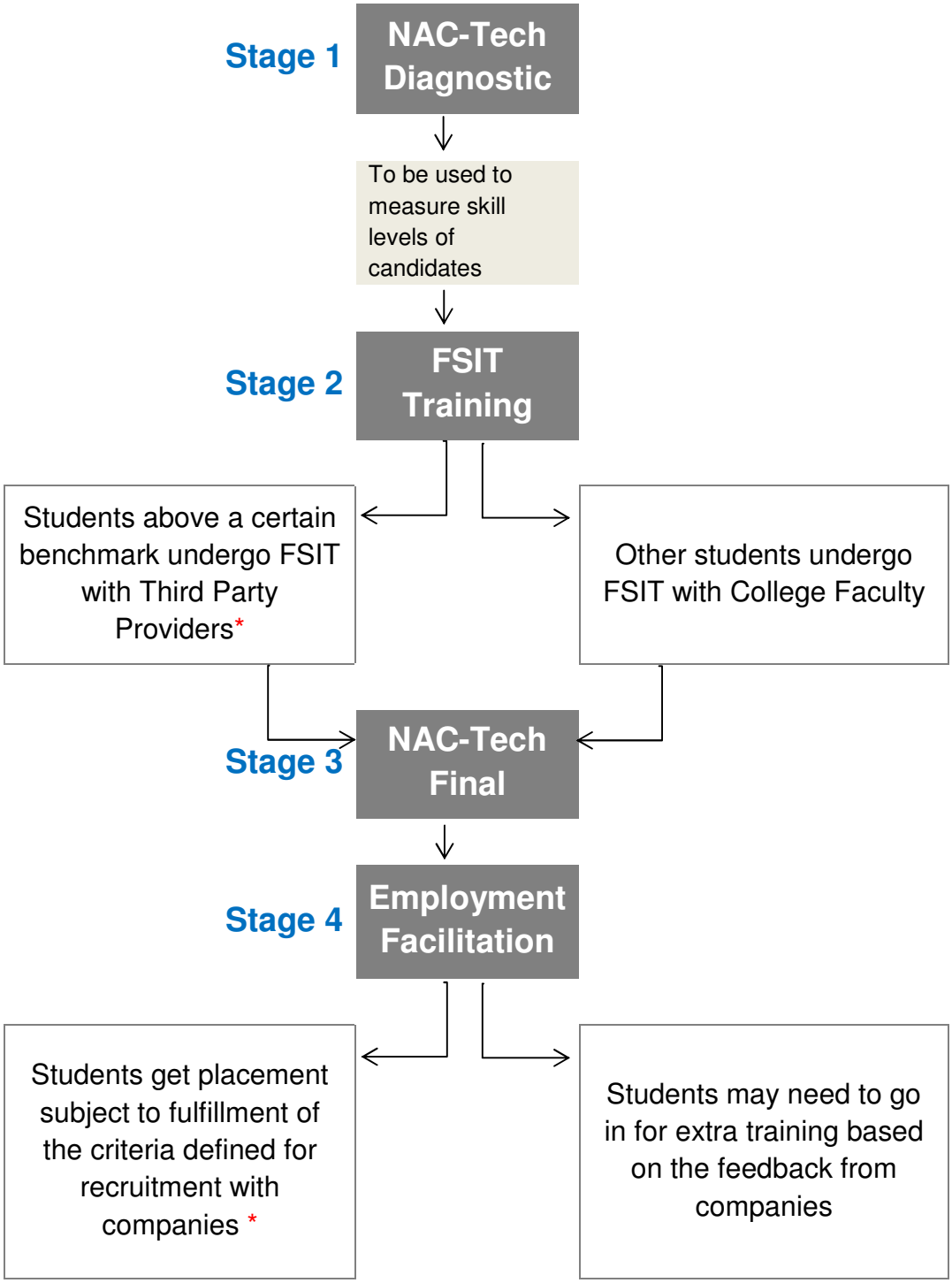
**Model 1 – Student training by college faculty**

- Industry trains Master Trainers identified by the University
- Master Trainers further train identified college faculty
- College faculty conduct student training

**Model 2 – Student training in hybrid mode – Some students trained by Third Party, other by college faculty (detailed below)**

- Third party training vendors can be hired for conducting the student training
- No. of 'college faculty' in such case will be lowered
- Candidates who get shortlisted by Industry, post NAC-Tech Diagnostic, can get training through training vendors *(refer to Process Flow on next page)*
- Candidates who are not shortlisted by Industry, can also be allowed for FSIT training, and get training through college faculty *(refer to Process Flow on next page)*

**PROCESS FLOW**



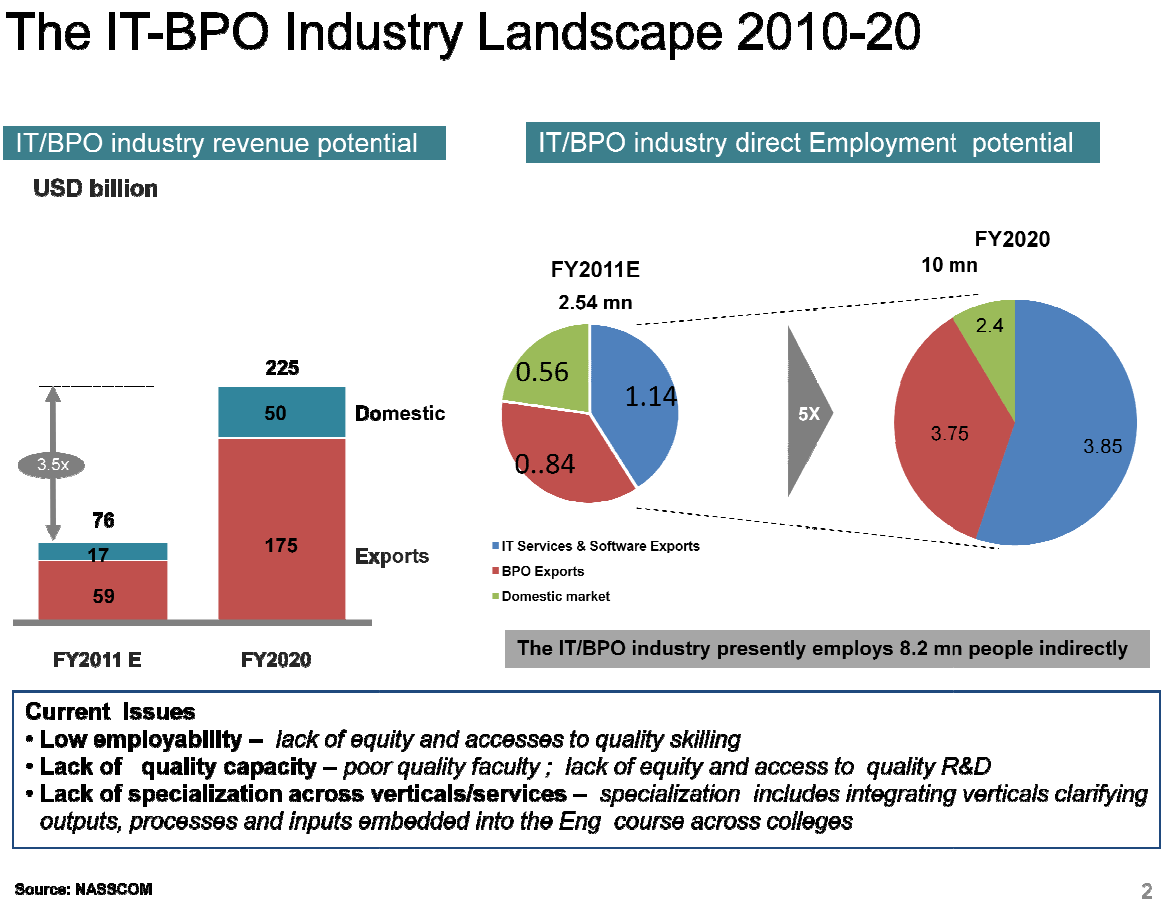

* *Students will get placed with companies subject to fulfilment of following criteria:*

*- Students performance in NAC-Tech Final*
*- Meeting the company-level criteria*
*- Successful completion of the UG program*
*- 100% attendance during FSIT training*

# Annexure – 1
## Current Talent Situation and Forecast

The IT-BPO industry has grown at an overwhelming pace and giving a major fillip to the Indian economy. India has established its leadership position globally in the offshore market and now the availability of skilled manpower is one of the key barriers to the fast growth of the industry. India's economic growth will greatly be accelerated if the Indian IT and BPO industries sustain their leadership with the appropriately skilled Onshore Human Resource.

**IT-BPO Industry: The Current and Future Landscape**




In FY 2009, the global technology and business services sourcing industry employed 2.2 million people in India, generating revenues of USD 59.9 billion. If India retains its current share, it will have revenues of USD 225 billion in 2020. **The industry will generate direct employment for 10 million people, and indirect employment for about 37.2 million people.**

Given the scenario that only 25% of our engineering graduates and 10 – 15% of our other graduates are directly employable by the industry, this is a huge opportunity for students to enhance their skills and become industry-ready to be directly employed by the industry.

NASSCOM is following a multi-pronged approach to facilitate manpower development for the short and long term. By following a two-phase strategy, NASSCOM is aiming to build a pool of manpower for the IT / Engineering, which will be pre-certified, in tune with the needs of the industry and, thereby, gear up for the future requirements of the sector.

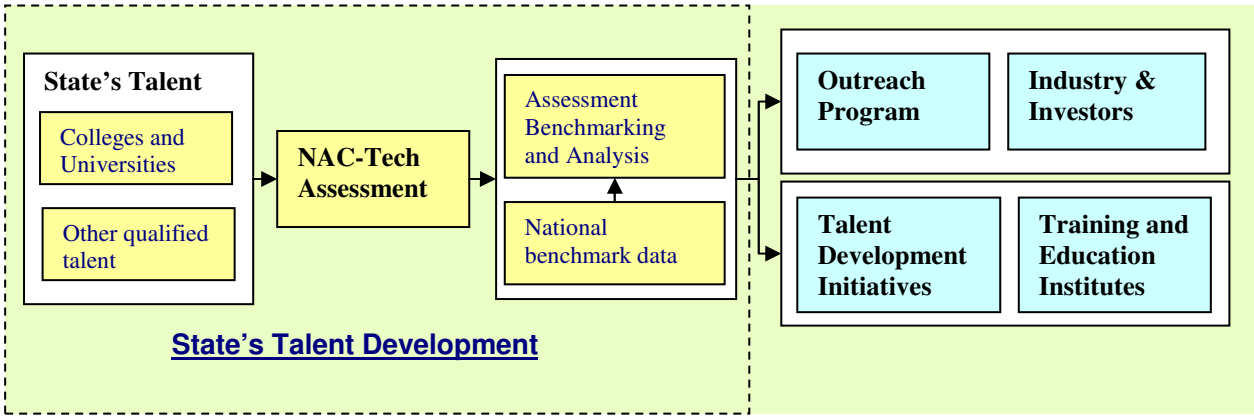
The key to success is to make this pool of talent available and accessible to the sector to employ them. Current conversion ratios ensure that there is not enough talent to sustain the growth in major IT and ITES hubs. This has fuelled thee the problem of attrition in the ITES/ BPO sector, with most of the companies are facing attrition problems. This is being manifested as:

- Demand and supply gap of talent
- Tier I cities reaching a talent saturation stage
- Industry moving out to new locations

All the above points outline the significance of an initiative which supports the addressable of talent supply agenda. First, it will create the much needed pipeline for the sector to recruit from anywhere in the country. Second, this will help bring companies to smaller cities and hence facilitate investment in state.

**Why the state education systems require NAC-Tech / FSIT**

NASSCOM Assessment of Competence - Technology (NAC-Tech) provides the state Governments with an opportunity to analyse the characteristics of their talent and as a result, boost its talent development initiatives of the state and attract investors, enhancing the overall employment opportunities.




Foundation Skills in IT (FSIT) program allows the state Governments to bridge the skill-gaps of its students to the level desired / demanded by the Indian IT industry for recruitment, leading to better employability scenario.

States need NAC-Tech / FSIT:

- To create a concept of 'education' to 'employability'
- To understand talent strength areas and areas of improvement in the state
- To scale up the availability & employability of potential students/candidates, thereby attracting more investors
- To define an assessment mechanism for individuals to assess his/ her training needs
- To propel jobs/ growth opportunities, esp. in Tier-II / III cities
- For greater awareness amongst its youth, graduating from colleges/educational institutions, about employment opportunities in the Indian IT / Engineering industry

# Annexure – 2
# Brief on Foundation Skills in IT (FSIT)

**Overview of the model**

The Foundation Skills in IT (FSIT) program will increase the industry readiness of students who want to start a career in IT / Engineering companies. The program has been developed using the 'Outcomes Based Format'[1] (OBF) keeping the focus on the key skills required to perform a given job role. The program has two tracks - one that focused on training and guide for the facilitator and the other for the student.

The FSIT program will be deployed as add-on program for undergraduate students across universities to help bridge the skill gaps that exist in students to get gainfully employed with the IT industry.

**Advantages of FSIT for various stakeholders**

For Students

- Awareness and knowledge to understand key concepts that can be applied to IT projects.
- Training opportunity on skills demanded by IT industry.
- Opportunity to hone basic skills involved in software development, business dynamics and project management..
- Ability to understand the skill gaps through NAC-Tech Diagnostic scores (i.e. pre training).
- Employment facilitation using NAC-Tech Final scores (i.e. post training).

For Academic Bodies

- Identifying the training needs of students and analyzing the gaps (both through NAC-Tech Diagnostic & NAC-Tech Final).
- Aligning the course curricula with industry requirements – bridging the "education" to "employability" gap.
- Preparing the students on skills that act as pre-requisites to work in the industry.
- Contributing to the industry by preparing the students through a pre-defined approach.

**Key Features**

- Eligibility – Pre-Final year undergraduates (all technical streams)
- Program price per candidate – About Rs.1771/- (estimate)
- Employment facilitation – Post-Training scores (i.e. NAC-Tech Final) of all NAC-Tech test takers are seen, primarily by the major IT companies and are considered for employment

[1] 'Outcomes Based Format' for curricula re-design has been advocated by NASSCOM and captures the 'Inputs', 'Processes' and 'Outcomes' for each of the programs.

# Annexure – 3
# Brief on NASSCOM Assessment of Competence (NAC-Tech)

**Overview of the model**

NASSCOM, through the NAC-Tech Council, comprising of member companies like TCS, Infosys, Wipro, Cognizant, Accenture and HCL, is facilitating the refurbishment and launch of NAC-Tech, which has been updated keeping in mind the requirements of the industry.

NAC-Tech has been conceived

1. To ensure the transformation of a "trainable" workforce into an "employable" workforce
2. To create a robust and continuous pipeline of talent for the IT / Engineering Industry, maximizing the employment opportunities for the deserving lot

This will be done by continuously assessing candidates on key skills through NAC-Tech which is a national-level assessment, thus making it easier for firms to screen candidates and also provide training need analysis to candidates. This will then be tied in to training and development efforts to help more candidates become competent to work in the industry.

**Why NAC-Tech?**
**Advantages of NAC-Tech for various stakeholders**

For Students

- Transparency in recruitment process across all IT companies
- No need to go through the same recruitment process at different companies
- Ability to identify self strengths and weaknesses through test scores
- Ability to do a 'training-need analysis', which will help them improve on weak areas through training programs
- Employment facilitation using NAC-Tech scores

For Academic Bodies

- Identifying the training needs of students and analyzing the gaps
- Aligning the course curricula with industry requirements – bridging the "education" to "employability" gap
- Preparing the students on skills that act as pre-requisites to work in the industry
- Contributing to the industry by preparing the students through a pre-defined approach

**Key Features**

- Eligibility – Final year undergraduates (all Engineering Students)
- Test price per candidate – Rs.232 plus taxes (where, infrastructure & proctors to be provided by the State)
  NAC-Tech Part A (mandatory): Rs.155/- per student per attempt
  NAC-Tech Part B (optional): Rs.77/- per student per attempt
- Employment facilitation – Scores of all NAC-Tech test takers are seen by the IT companies and are considered for employment

# Annexure – 4
# FSIT – State Roll Out

Activities to Undertake

| | Activity | Primary Responsibility |
|---|---|---|
| **Project Planning** | | |
| | Agree on the Scope of Roll Out | NASSCOM and State/Identified State Representative Body |
| | Identify Key Stakeholders | State//Identified State Representative Body |
| | Agree on the Work plan | NASSCOM & State/Identified State Representative Body |
| | Conduct the Orientation Workshop | State/Identified State Representative Body |
| **Preparation for the programs** | | |
| | Information share with Key Stakeholders identified by the State | NASSCOM |
| | Preparing the logistics | State/Identified State Representative Body |
| | Advertisement / Promotion | State/Identified State Representative Body |
| | Reach Out Program to Students | NASSCOM |
| **Program Roll Out** | | |
| | Logistics Support | State/Identified State Representative Body |
| | Conducting the Program / Assessment | NASSCOM |
| | Feedback to the Candidate | NASSCOM |
| | Assessment Analysis and Benchmarks | NASSCOM |
| **Future Roadmap** | | |
| | Roadmap to Future - Assessment and Education Alignment | NASSCOM & State/Identified State Representative Body |

**Channels for roll out**

With the consent of the participating State, NAC-Tech & FSIT can be rolled out throughout the State or independent colleges/Universities across the state. This will help the initiative get the traction it requires by reaching the end user directly in these institutions. Also the initiative can make use of the existing infrastructure at these institutes to deploy the programs.

**Post test analysis and reporting**

NASSCOM shall do the post-test analysis (both in the case of NAC-Tech as well as FSIT) and submit a summary report to the State. The report will have the following:

1. Aggregate scores of candidates
2. Aggregate scores on different testing themes
3. Benchmark analysis of State scores, to be used as input for industry outreach programme
4. Summary input for talent development initiatives on the key focus areas for the State going forward to bridge the existing skill gaps

In broader perspective, these would form input to two core areas in a state's development, i.e. Training and Education. In the short term, good training infrastructure plays a vital role in facilitating growth of talent in any state. Also, this is one of the factors that any investor would look for before closing in on an investment location.

In the medium to long term improving the education system helps a state get prepared for meeting expectations of high growth industries. It is also very important to focus on the 'employability of talent' factor at the school education stage itself.

As part of the post test reporting, NASSCOM shall provide the State with high level input on the focus areas in order to improve talent situation.

# Annexure – 5

## NASSCOM's guidelines on the infrastructure requirements for the FSIT training program (for TOT / Student Training)

**A.** For TOT (batch of 25 trainers - *max*):

i. Classroom size - Min. 10 ft. x 15 ft.
ii. Roundtable with a seating capacity of 25
iii. Computer / Laptop with speakers & CD ROM – 1 (for master trainer)
iv. Computer lab with 25 Computers (desktop) with following:
    - CD Rom
    - MS Office
    - Typing Tutor (software)
    - Speakers
    - Headphones with microphone – 25
    - Internet
v. LCD Projector & Screen – 1
vi. Whiteboard - 1
vii. Flip Charts – 5

**B.** For Student Training (batch of 30 candidates - *max*):

viii. Classroom size - Min. 10 ft. x 15 ft.
ix. Tables / chairs - 30
x. Computer / Laptop with speakers & CD ROM – 1 (for trainer)
xi. Computer lab with 10 Computers (desktop) with following:
    - CD Rom
    - MS Office
    - Typing Tutor (software)
    - Speakers
    - Headphones with microphone – 30
    - Internet
xii. LCD Projector & Screen – 1
xiii. Whiteboard – 1
xiv. Flip Charts - 5

# Annexure – 6
# Instructor profile for the Foundation Skills in IT (FSIT)

**Instructor Profile**

**(E) – Essential / (D) – Desirable**

- Bachelors or Masters Degree in any branch of Engineering / Technology. (E)
- 1 - 2 years of teaching experience. (E)
- Highly articulate and skilled facilitator able to motivate adult learners (E)
- Familiarity with adult learning theory and instructional methods (D)
- Exceptional command of written English with an emphasis on the principles of clear, succinct, focused business communication (E)
- Ability to coach and mentor adult learners and monitor progress (E)
- Ability to conduct periodic evaluations of the written language skills of the trainees (E)
- Ability to implement a formal curriculum, follow lesson plans and adhere to established instructional standards (E)
- Exceptional time management, prioritization, and critical thinking skills (D)
- Familiarity with grammar, usage and stylistic differences between Indian English and Global English, as well as standards of business English (writing and speaking) (E)
- Must have excellent diagnostic and problem-solving skills (D)
- Ability to check sentences for subject/verb agreement errors, sentence syntax, tone, word choice, usage and punctuation (E)
- Instructional design/curriculum development background, desirable (D)

# Annexure – 7

## Infrastructure requirements for conducting NAC-Tech Diagnostic / Final

| Minimum Configuration for NAC-Tech Tests | |
|---|---|
| **Description** | **Client PC (Test Taking PC) (with a Monitor, Mouse & Keyboard)** |
| **Operating System** | Windows® XP SP3+, or 7 |
| **CPU** | Pentium® IV and higher |
| **RAM** | 1GB RAM and above |
| **HDD** | At least 500 MB free disk space |
| **Web browser:** | Internet Explorer 6.0, 7.0 or 8.0 |
| **Broadband Internet connection** | E1 with a bandwidth of at least 1Mbps or Shared DSL or cable with a bandwidth of at least 2 Mbps for 25-30 users |
| **Sound Card with necessary audio and video drivers** | Yes (Should support recording & playback capabilities) -- OPTIONAL |
| **Headset with Microphone** | Headset with a USB headset is strongly recommended -- OPTIONAL |
| **Java Scripts** | JRE 1.6 (Enabled in the browser) |
| **Adobe Flash Player 10.0** | Yes |
| **UPS (assuming that generator will be used during power failure)** | 2 Hours Battery Backup |
| **Generator (may be used for 8 hours or more if needed)** | Yes |
| **CD-ROM Drive** | OPTIONAL |
| **USB Ports** | OPTIONAL |
| **Antivirus** | Yes |
| **Screen resolution** | 1024 x 768 pixels |
| **Laser PRINTER** | 1 for every 30 machines |
| • Network security access to allow http://202.138.124.234/Nactech2 (port 80) | |
| • Disable pop-up blocker on all machines | |

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