

Proposal for Skill Development in Electronics System Design and Manufacturing (ESDM) Sector



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**Government of Punjab
Department of Information Technology
SCO 193-195, Sector 34-A, Chandigarh**

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Proposal for financial assistance for Skill Development in Electronics System Design and Manufacturing (ESDM) Sector in the state of Punjab.

Introduction:

Electronics Industry entails electronics system design and manufacturing which comprises semiconductor design, high tech manufacturing, electronic components, electronics manufacturing system and electronic system design for consumer electronic products, telecom products and equipment, and IT systems and hardware. In general, Indian Electronics and Hardware Sector have six key segments, namely *Consumer Electronics, Industrial Electronics, IT Hardware, Telecom Equipment, Electronics Components and Strategic Electronics*. *Consumer Electronics* and *Telecom equipment* are the largest segments with about 27% share each in total production. *Telecom Equipment* and *IT Hardware* have witnessed high growth rates due to advent of IT and the Indian Telecom Industry and are the fastest growing segments of the Electronics Industry.

Electronics, reported at USD 1.75 trillion, is the largest and fastest growing manufacturing industry in the world. It is expected to reach USD 2 trillion by 2014 and USD 2.4 trillion by 2020. Currently, the demand in the Indian market stands at USD 45 billion and is projected to grow to USD 125 billion by 2014 and USD 400 billion by 2020. Further, exports are expected to increase from the current USD 4 billion to USD 15 billion by 2014 and USD 80 billion by 2020. The domestic production of the electronic industry is less than 45% and consumption is expected to grow at CAGR of 22% for the period FY 10 to FY 20. This will be driven by high income levels, demand from corporate sector and Government focus on e-Gov.

In the state of Punjab the electronics industry units are mainly concentrated as a cluster in Mohali and also at Ludhiana and Amritsar. In Mohali, an Electronics City has been developed in an area of 289 acres and recently 40 acres of land has been made available for setting up of an ESDM cluster in the 1700 acres of IT city being developed at Mohali. Besides around 400 acres of land has been reserved in the IT City for allotment of plots to IT/ITeS industry. There is a center of CDAC operating from Mohali and center of NIELIT at Chandigarh. There is a lot of scope for trained manpower in ESDM sector for their placement in Punjab and nearby industry in Haryana and NCR which can be utilized in the fields of *Consumer Electronics, Industrial Electronics, IT Hardware, Telecom Equipment, Electronics Components and Strategic Electronics*. *Consumer Electronics* and *Telecom equipment*.

Aim of the Proposal:

The instant proposal aims at enhancing the skill capacities in ESDM Sector through public and private sector for students/ unemployed youth belonging to other disciplines by:

- I. Utilizing the existing human resources who are undergoing studies in schools (IX/X standard onwards)/ ITIs/ Polytechnics/ UG Colleges (non engineering) and the school drop outs / unemployed youth by providing them with additional skills that are recognized by industry for employment in ESDM Sector.
- II. Encouraging new investment in training in ESDM sector by industry.
- III. Facilitating evolving of process / norms for
 - a. Certification of various courses
 - b. Recognition of institutions for conducting such courses, as per requirement of Industry in ESDM Sector.

Objective:

To train 15,000 students during 4 years of the scheme in Electronic System Design & Manufacturing (ESDM) sector in the State of Punjab for improving employability of the students/unemployed youth in the state itself. The level/ year wise target is as follows:

SN	Levels	Year-1	Year-2	Year-3	Year-4	Total
1.	L1,L2 level	750	950	950	1100	3750
2.	L3 level	750	950	950	1100	3750
3.	L4 level	1050	1300	1300	1600	5250
4.	L5 level	450	550	550	700	2250
	Sub Total	3000	3750	3750	4500	15000
A	Reserved Seats (40%) - SC/ST/EWS	1200	1500	2400	1800	6000

B	General Seats (60%)	1800	2250	2250	720	9000
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Duration:

The scheme will be implemented for 04 years.

Scope of Activities:

The instant proposal aims to generate the technical manpower as per industry domain requirements. This will ultimately enhance the prospects of rapidly growing employability in Electronic Hardware Sector and generate Self-employment/Entrepreneurship in Electronics hardware.

Target beneficiaries:

All levels of beneficiaries who in-turns become technologically trained workforce as per scheme detailed below:

1. L1-L2: Unskilled i.e. IX-X std or VIII passed
2. L3: Semi Skilled i.e. ITI pass
3. L4: Supervisor i.e. 10 + ITI, 12th pass and other Graduates (non Science)
4. L5: Master Technician i.e. Post Diploma or BSc

Reservation of Seats:

SC - 15.0%
 ST - 7.5%
 EWS* - 17.5%
 Total Reservation - 40.0%

*Criteria for EWS: An amount of Rs. 2.0 lakhs per annum as Parental Income from all sources be adopted as a ceiling for selecting the candidates from EWS section along with adoption of 'merit-cum-means'.

In case sufficient number of students is not available under a particular category mentioned above, the vacant seats will be filled from other reserved category candidates. In case, all the reserved seats are not filled, candidates from general categories will be considered for the courses.

Course Fee & Financial Assistance:

Particulars	Course Fee in Rs.
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L1, L2 Level	5000/-
L3 Level	10000/-
L4 Level	12000/-
L5 Level	15000/-

- Assistance of 75% of Course fee for students. 25% of course fee to be paid by Student.
- Assistance of 100% course fee for students belonging to SE/ST/EWS.
- Assistance to be provided only after a candidate clears a certification exam.

Background and justification:

Earlier, the basic aim of the Department of Information Technology Punjab was to formulate and implement an action plan for induction of Information Technology / e-Governance action plan in the State of Punjab at all levels in coordination with the concerned Departments. The Department of Information Technology, Punjab has been allocated the following businesses:-

- 1. Promotion of Information Technology (IT) including Electronics Manufacturing Industry in Punjab.***
- 2. Policy for setting up of Information Technology (IT)/ Knowledge Parks and ESDM Parks/clusters.***
- 3. Policy for encouragement of Information Technology enabled service (ITES) industry.***

The amended rules entrusts the Department of Information Technology Punjab to promote Information Technology (IT) industry and Information Technology Enabled Services (ITES) industry in the State including Electronics Design and Manufacturing industry also.

Main activities/functions of the department:-

The Department envisions undertaking various activities/ functions including the following:-

- To prepare appropriate strategic and effective plan/ framework for the promotion of IT/ Electronics Industry in the State of Punjab and better tactical and operational decision-making for its efficient monitoring and management.
- Policy formulation, review and revision for setting up of Information Technology (IT) / Knowledge / ESDM Parks and oversee its implementation.

- Bring-in investments in IT, Knowledge, ITES, ESDM sector in Punjab.
- Policy formulation, review and revision for encouragement of Information Technology enabled service (ITES) industry and oversee its implementation.
- Single window facilitation for promoting knowledge industry in the areas of IT and IT Enabled Services.
- Infrastructure creation and development for knowledge industry.
- Marketing of the State as a preferred investment destination in field of Information Technology (IT), Knowledge. ITES and ESDM industry.
- To bring about effective levels of collaboration amongst various stakeholders such as Department of Industry, Punjab Information & Communication Technology Corporation Ltd., Department of Employment Generation & Training, Department of Technical Education & Training, citizens and businesses etc with an aim of encouragement of IT enabled service industry.
- To bring highest levels of businesses and citizen satisfaction for delivery of services in an effective, convenient and transparent manner.
- The Department of Information Technology will take necessary steps in consultations with various stakeholders in the state for development of ESDM, IT Industry and IT Corridors for attracting investments and associated sectors in the state.
- The Department will seek consultancy and guidance from private sector/ industry associations/ bodies for studying the best practices and success stories with objectives of promotion of investments from domestic and foreign sources; creation of employment opportunities and development of infrastructure facilities.
- Appropriate measures would be taken for developing skills and knowledge of youth of Punjab in the desired fields or areas including Electronics for suitable placement within the state itself.

Potential for Skill Development in ESDM

The Government of Punjab has the following existing facilities in the State:

- Electronic City Developed in an area of 289 acres in Mohali
 - Centre for Development of Advanced Computing (C-DAC)
 - Electronic Test and Development Center
- Plug and Play infrastructure at Quark City, Mohali
 - Plug- and-play space of 1.1 million sq. ft

- Existing ecosystem attracting investment by the knowledge industry
- State of Art Incubation Center, Mohali
 - 1.40 lakh sq. ft built up space
 - Tier-III state-of-art Green Data Center will be established
- IT City, Mohali
 - 1,700 acres available for development
 - 40 acres of land earmarked for ESDM Cluster.

Human Resources

Skill Development in Govt. Colleges of Punjab

- The Government of Punjab is successfully running a skill development programme P-STEP (Punjab Skill Training and Employment Potential) in Government Colleges in which BA/BSc final year students are imparted training of 100 hours in Communication Skills & Soft Skills, Customer Care- Product & Services, IT Fundamentals-General Computer Proficiency, Resume & Interview Skills, Business Etiquette & Professional Decorum and Domain Specific Skills. This course was run in 23 colleges of the State and 1840 students were imparted training in the previous year. There is a proposal to train 3000 students in 30 colleges in the year 2014-15 under the above said programme.
- Punjab State is ranked 3rd in India with respect to Education Development Index by the United Nations.
- There are 101 engineering colleges, 181 polytechnics and 378 ITI's in the State ensuring a ready pool of skilled talent for industry
- The Punjab State has an annual supply of 16,000 engineering graduates

Institutes	Number	Capacity	Courses offered
Engineering colleges	101	43,784	35
Polytechnics	181	62,700	29
ITI's	378	62,000+	91

The Department of Technical Education Punjab is presently running diploma courses in Electronics & IT related fields in **139 Polytechnic Colleges** spread all over Punjab State. These Polytechnic Colleges include Government, private and Government aided institutes. Majority of these institutes are co-educational and some Government polytechnics are meant for imparting Technical Education exclusively to the girls. The

list of colleges along with sanctioned intake is attached at **Annexure-‘B’**. All India Council of Technical Education (AICTE) is the regulatory body for giving approval to these institutes for running these Engineering Courses. As per AICTE guidelines it is mandatory for these institutes to strictly comply with the norms / regulations regarding infrastructure and manpower to seek approval for running these courses. Punjab State Board of Technical Education has been authorized by the State Govt. to conduct academic audit of all these institutes from time to time.

The following Prominent institutes with dedicated focus in IT/ ITeS space are existing in the State:

- Indian Institute of Technology, Ropar
- Thapar University, Patiala
- Punjab Technical University, Jalandhar,
- National Institute of Technology, Jalandhar
- Centre for Development of Advanced Computing (C-DAC)

Investment Opportunities:

- There is a significant potential for developing niche capabilities in the IT/ ITeS / ESDM sphere in the State.
- The private companies have proposed to develop IT parks to foster growth of IT industry and there would be huge demand for skilled manpower in IT and Electronics.

The major initiatives taken by the State of Punjab are as under:

(i) **STPI Centre at Amritsar:**

The Government of India has approved to the proposal of Punjab Govt. to setup STPI Center at Amritsar. The Punjab Government has provided 2.72 acres of land at Focal Point at Amritsar for public building for setting up of STPI Centre at Amritsar. An MOU has been signed between Govt. of Punjab and Director General STPI to complete the project. Establishment of STPI facilities and State-of-the-art incubation facilities at Amritsar are considered absolutely necessary for growth of software industry in the region.

(ii) Setting up of Electronics Design and Manufacturing (ESDM) Cluster to provide world class infrastructure for attracting investment in the sector at SAS Nagar (Mohali) in Punjab.

At present the industry is considered by high level of import and low domestic content, however, the scenario is expected to change in the near future as the thrust is given on higher domestic value addition, indigenous manufacturing and product development. The major industries covered under ESDM will be Aerospace & Defence, Atomic Energy and Space, Automotive Electronics Segment, Information and Broadcasting Segment, Industrial Electronics Segment, Medical Equipment Electronics Segment, Solar Photovoltaic Segment, Telecom Segment, Information Technology (Computers and Peripherals) Mobile Devices, Consumer Electronics, E-Waste Management, Components and other Items.

The employment in the Electronics Industry is estimated to grow phenomenally. Hence the scheme would facilitate skill development in ESDM Sector focusing on students/unemployed youth, ITI, Diploma, Non Engineering graduates to increase their employability to work in 'Manufacturing' and 'Service Support' functions. The present education / skill development system at both formal as well as non-formal level is not vibrant enough to meet the emerging requirement of ESDM Sector. To address the emerging human resources requirement for ESDM Sector the State Government will create an enabling requirement for increasing the number of skill providers.

Hon'ble Sh. Kapil Sibal, Minister of Communications & Information Technology and HRD, Govt. of India announced setting up of ESDM cluster in the state of Punjab for which the Government of Punjab has reserved 40 acres of land at SAS Nagar (Mohali).

As per decision taken by Government of Punjab, GMADA(Greater Mohali Area Development Authority) has reserved 40 acres of land to offer to Department of Information Technology, Punjab for setting up of ESDM Park subject to condition that sewerage, power and water supply lines up to outer limit of ESDM Park will be provided by GMADA. Internal Development will be carried out by Department of Information Technology.

For setting up of greenfield ESDM Cluster in Punjab, the Government of Punjab is finalizing the selection of SPV (Special Purpose Vehicle) after discussion with various Industry Associations.

The Government of Punjab has held discussion with Govt. of Japan and Government of Taiwan. The two countries has shown their keen interest for setting up

their Electronic Industry in Punjab. As such there would a large requirement of skilled workers in the Electronic Industry.

(iii) STPI centers at Jalandhar and Ludhiana:

The Government of India has recently approved for setting of 2 more STPI centers at Jalandhar and Ludhiana.

(iv) Knowledge Park and IT Park in Mohali

The Punjab Government is committed to overall development of IT Industry in the State to attract IT Industry and Development of IT Parks. Punjab Government has reserved 1700 acres of land at Mohali which is located for development of Information Technology Park/ Knowledge Park at Mohali. Most of the area is to be used for IT, IT Enabled services and Bio Technology (Non Polluting) based industries.

(v) Permanent Campus of National Institute of Electronics and Information Technology(NIELIT), Chandigarh in Ropar

The Government of India has approved the proposal Submitted by NIELIT Chandigarh (An autonomous Scientific Society Under Department of Electronics & Information Technology, Ministry of Information & Communication Technology, Govt. of India) for Setting up of its Permanent Campus at Ropar. The Punjab Government has provided 12.5 acres of land at Adjoining IIT Ropar to NIELIT Chandigarh for setting up of NIELIT Chandigarh's Permanent Campus at Ropar. The Establishment of NIELIT expected to provide wide spectrum of services to encourage entrepreneurs in Electronic Hardware Sector by way of developing prototype Electronic Products through formal courses in Electronic Product Design starting from B.Tech. level to Ph.D. level. The Technology of prototype developed may be transferred to prospective entrepreneurs and Industries. Apart from formal sector, a large number of non-formal courses in Electronics sector would be conducted at Ropar meeting the industry requirement. The proposed campus would also provide services to IT Industry by conducting high end M.Tech. and Ph.D. courses in the emerging areas besides non-formal courses suitable for IECT Industry.

Implementing agency and Training Partners for Skill Development in ESDM:

Since the implementation of various schemes particularly Promotion of IT/ Electronics Industry & Development of IT/ ESDM/ Knowledge Parks in the state require an executing arm of the department for the sake of financial and technical flexibility required in the implementation of such projects, the Department of Information Technology Punjab has set up a Society for Promotion of Information Technology Industry in Punjab (SPITIP). The scheme for Skill Development in Electronics System Design and Manufacturing (ESDM) Sector will be implemented through this society. It is proposed to appoint National Institute of Electronics & Information Technology(NIELIT), Chandigarh & Centre for Development of Advance Computing(CDAC) Mohali under Department of Electronics & Information Technology, Ministry of Information & Communication Technology, Govt. of India) as Training Partners for the Project.

An Implementation Committee to oversee the effective implementation would be constituted under the Chairmanship of Principal Secretary (IT), Punjab with representations from NIELIT, CDAC and state Departments of Technical Education and Industrial Training School Education of Government of Punjab as members of the committee.

Details of the proposed courses is annexed at Annexure-A. It may be noted that the courses mentioned in the annexure are indicative only and their number & programmes will be updated in consultation with training partners, participating institutions and requirement of the industry

Roles & Responsibilities of the implementing agency i.e. Society for Promotion of Information Technology Industry in Punjab (SPITIP)

- To sign an MoU with DeitY and be the single point contact on behalf of the State Government w.r.t. implementation of the scheme.
- To sign an MoU with NIELIT Chandigarh and CDAC Mohali (Training Partners) w.r.t. implementation of the scheme in the state. The detailed modalities of the MOU will be worked out with training partners.
- To liaise with the training /skilling partner (both government as well as private including ITIs/Polytechnic, other state level institutions etc.) duly identified / recognized/ accredited by NIELIT/SSCs.

- To facilitate sharing of resources already available – Workshops, labs need not to be set up in training institutes.
- To liaise, interact and coordinate with Govt. training / educational institutions/ schools for working out collaboration with the identified training/skilling agencies/institutions so as to ensure that their students join these training programmes.
- To liaise, interact and coordinate with respective employment exchanges to work out a mechanism for enrolment of unemployed youth in these training programmes.
- To liaise, interact and coordinate with the proposed EMCs partners/stakeholder in their respective states/UTs to ensure dovetailing of this scheme with EMCs.
- To create a placement mechanism for liaising, interacting and coordinating with the prospective employers for ensuring placement of the trained/skilled candidates.

Roles & Responsibilities of participating institutions like ITIs /Polytechnic/Engineering Colleges etc.

- Providing necessary infrastructure with classroom, projector, Workshops, labs etc.
- Depute dedicated coordinator/administration staff for support to program on day-to-day basis.
- Provide a list of students to Training Partners/ Implementation agency i.e. Society for Promotion of Information Technology Industry in Punjab (SPITIP).

Roles & Responsibilities of the Training Partner i.e. NIELIT Chandigarh & CDAC Mohali

- Ensuring quality training with uniform curriculum throughout the state
- Ensuring proper execution of courses in predefined manner
- Providing timely feedback of the program according to Monitoring and Evaluation Mechanism
- Preparing weekly, monthly, quarterly progress report.

- NIELIT will also perform Certification Activities for the candidates
- Work out modalities with implementation agency for sharing of resources for training
- To prepare a mechanism, standard norms and guidelines for design, development, delivery, assessment and certification for various courses in consultation with Industry and employers.
- To prepare a competency based curriculum that would include syllabus, student manual, trainers guide, training manual, teacher qualifications, multimedia package and e-material.
- To ensure that the curricula is prepared modularly which allows for step ups in skill accumulation and facilitate exist and entry. All the courses are to be aligned with NVEQF and later to NSQF (as and when it is ready).
- To assess and certify the competence acquired at each level for ensuring recognition and acceptance by Industry and prospective employers.
- To finalize courses at all level, fix minimum duration and fees at each level.
- To prepares guidelines and norms for accreditation of training/ skilling institutions in terms of training infrastructure, labs, faculty/ trainers, etc.
- To promote accreditation of large number of training institutions by providing necessary guidance, training of trainers, etc.
- To prepare norms for periodic monitoring and assessment the quality of training partners/ accredited institutions.

Financial Proposal:

A grant-in-aid of Rs 16,28,55,000/- (Rs Sixteen Crores Twenty Eight Lacs Fifty Five Thousand only) will be required for implementing the scheme in the state of Punjab as per following details based on the rates and targets provided in the notification of the scheme by Ministry of Communications and Information Technology, GOI.

Table showing details of Financial Proposal:

SN	Year	Level	No. of Students	Course Fee per Student (In Rs.)	Examination Fee Per Student (In Rs.)	Total Exam Fee (In Rs.)	75% of Course Fee for General Category Students (for 60% Students) (In Rs.)	100% Course Fee for SC/ST/EWS Category Students (In Rs.) (for 40% Students)	Total Course Fee (Col 8+ Col 9) (In Rs.) (Skilling Assistance)	Total Fee (Col 6+Col 10) (In Rs.)	
1	2	3	4	5	6	7	8	9	10	11	
1	Year-1	L1,L2	750	5000	500	375000	1687500	1500000	3187500	3562500	
2		L3	750	10000	1000	750000	3375000	3000000	6375000	7125000	
3		L4	1050	12000	1500	1575000	5670000	5040000	10710000	12285000	
4		L5	450	15000	2000	900000	3037500	2700000	5737500	6637500	
5	Year-2	L1,L2	950	5000	500	475000	2137500	1900000	4037500	4512500	
6		L3	950	10000	1000	950000	4275000	3800000	8075000	9025000	
7		L4	1300	12000	1500	1950000	7020000	6240000	13260000	15210000	
8		L5	550	15000	2000	1100000	3712500	3300000	7012500	8112500	
9	Year-3	L1,L2	950	5000	500	475000	2137500	1900000	4037500	4512500	
10		L3	950	10000	1000	950000	4275000	3800000	8075000	9025000	
11		L4	1300	12000	1500	1950000	7020000	6240000	13260000	15210000	
12		L5	550	15000	2000	1100000	3712500	3300000	7012500	8112500	
13	Year-4	L1,L2	1100	5000	500	550000	2475000	2200000	4675000	5225000	
14		L3	1100	10000	1000	1100000	4950000	4400000	9350000	10450000	
15		L4	1600	12000	1500	2400000	8640000	7680000	16320000	18720000	
16		L5	700	15000	2000	1400000	4725000	4200000	8925000	10325000	
	Total		15000			18000000			13005000	14805000	
	Overhead and Placement Assistance @ 10% of Skill Assistance									0	14805000
	GRAND TOTAL (Rs.)										16285500
	Rupees Sixteen Crore Twenty Eight Lacs Fifty Five Thousands Only										

In light of above facts, it worthwhile to mention that Punjab State has sufficient infrastructure, manpower & renowned Training Partners/ Implementing agencies to run the scheme of Skill Development in ESDM Sector without any difficulty. It is therefore requested that Punjab State may be selected for the said scheme.

Information on some of the Courses proposed to be conducted under ESDM in the state of Punjab

SN	Course Title	Level	Title Awarded	Duration	Eligibility at Entry Level	Participating Institutions (PI)	Course Coverage (Indicative Only)
1	Repair & Maintenance of Electronic Home Appliances	L1-L2	Certificate	240 Hours	IX-X Std	ITI/ Polytechnics/ NIELIT	Emergency lights, Inverter, Microwave oven, Washing Machine, Iron, Fan, Set-top Box
2	Certificate Course on PCB Design & development	L3	Certificate	350 Hours	ITI	CDAC, Mohali	Basic Electronic PCB design
3	Certificate Course on operation, service & maintenance of Neurology, respiratory and Analytical medical equipment	L3	Certificate	350 Hours	ITI	CDAC, Mohali	Basic Maintenance of medical equipments
4	Certificate Course on PC Maintenance and peripherals	L3	Certificate	350 Hours	ITI	CDAC, Mohali/ITI/Polytechnic	Repair & maintenance of computers, hardware like printers, plotters etc.
5	Advance course in Hardware & Networking	L4-L5	Certificate	350 Hours	Diploma/ Post Diploma	CDAC, Mohali/ITI/Polytechnic	Basic electronics, PC maintenance, laptop maintenance, network essentials, etc.
6	Advance course in	L4-L5	Certificate	350	Diploma/	CDAC, Mohali	Basic electronics, clinical

	Bio-Medical Equipment and Maintenance			Hours	Post Diploma		laboratory instruments, etc.
7	Advance Course in Microcontrollers: Architecture Programming & Interfacing	L4-L5	Certificate	350 Hours	Diploma/ Post Diploma	CDAC, Mohali/ITI/Polytechnic	Microcontrollers, memory concepts, timers, counters, interrupts
8	Diploma in Electronics Product Design	L4-L5	Certificate	400 Hours	Post Diploma	CDAC, Mohali	Electronics product designing and development
9	Diploma in Broadband (VoIP) communication Networks	L4-L5	Certificate	400 Hours	Post Diploma	CDAC, Mohali	Telecommunication concepts, mobile & wireless comm., broadband comm., hardware maintenance

Note: The courses mentioned above are indicative only and their number & programmes will be updated in consultation with training partners, participating institutions and requirement of the industry

Attached as separate pdf file