CRISP
Deliberate. Design. Deliver.
Centre for Research in Schemes and Policies

National Initiative on Skill Integrated Higher Education (NISHE)

Implementation of Apprenticeship Embedded Degree Programs (AEDPs) in Tamil Nadu from AY 2024-25

1. Introduction

1.1 India has been witnessing a rapid economic growth in a multi-sectoral pattern across industry and service sectors. While the growth has multiplied and diversified exponentially, it is the employment aspect that has not kept pace with the growth momentum. Employment is the significant outcome for the bulk of the college-going youth. However, the critical component of employability determines employment prospectus and this is an area of concern, more so for the 43,000 Conventional Degree Colleges in the country and within them, the Government Degree Colleges (GDCs).

1.2 The main reason why 55 lakh students out of the annual 1 lakh non-professional degree pass outs in India remain unemployed & unemployable is that industry-demanded skill-sets are not embedded in the college curricula. There is a dire need to transform the curricula of B.A., B.Sc. and B.Com. through the introduction of new and industry-aligned courses with hands-on work exposure integrated into the curriculum. This work exposure should be in the form of apprenticeship during the period of learning. A transformatory approach of this nature would equip students with professional abilities and make them industry-ready.

1.3 Past efforts have been undertaken in the states of Telangana, Tamil Nadu, Uttar Pradesh and Himachal Pradesh, and as of now more than 50 colleges mentored by the Centre for Research in Schemes and Policies (CRISP) are implementing Apprenticeship Embedded Degree Programmes (AEDPs). The Logistics, Retail, and Tourism & Hospitality Sector Skill Councils (SSCs) are additionally implementing such programmes in a combined set of about 100 more colleges. Apprenticeship linkage has been successful in all colleges. **In Tamil Nadu, 12 colleges are already implementing BBA Logistics.**

2. State Overview

2.1. With almost 66% of the population in the working age population, Tamil Nadu is one of the few states that boasts of the highest demographic dividend. However, due to a constant birth rate, it is anticipated that this dividend will run out during the course of the following ten years. By 2022, there would be 2.25 lakh skilled workers and 3.6 lakh semi-skilled workers in the human resources sector. It is possible to use the excess supply of unskilled labour resources to close this gap by implementing skill development initiatives. District wise data on clusters of growth in each sector according to industry is given below.

Sector/ Data sources	Factors leading to Growth in Sector	District Wise Growth Habitat
Agriculture	Historical trends in GDP and employment, crop yields and patterns at the district level, and workforce size	**1. Horticulture**: Thiruchirappalli, Thoothukkudi, Tirunelveli, Pudukkottai, Thanjavur, Krishnagiri, Vellore, Dindigul, Theni, Dharmapuri, Madurai, Erode, Karu, Coimbatore, Sivaganga
		2. Animal Husbandry: Tirunelveli, Thoothukkudi, Pudukkottai, Erode and Villuppuram
		3.Fisheries: Nagapattinam, Thiruvarur, Thanjavur, Thoothukkudi, Kanniyakumari and Chennai.
Automobile	Historical trends, industry output, labour elasticity, GDP share, and expected investment	Chennai, Kancheepuram, Coimbatore, Madurai and Sivaganga
Chemicals & Pharmaceuticals	Previous patterns, sector production, labour elasticity, GDP contribution, anticipated investment,	**1. Chemical industries:** Chennai, Cuddalore, Nagapattinam and Thoothukkudi, **2.Manufacturing facilities available for:** Fertilisers, paints, carbon black, pesticides, pharmaceuticals, polymers, caustic soda and soda ash.
Electronics Hardware	Previous patterns, sector production, labour elasticity, GDP contribution, anticipated investment, and original study findings. Growth is noted due to the favourable investment climate and access to multimodal transport	Chennai and Kancheepuram
Food Processing	Previous patterns, sector production, labour elasticity, GDP contribution, anticipated investment, and original study findings	Madurai Dindigul belt, forming an industrial cluster. Krishnagiri, the leading producer of mango pulp, is an emerging cluster. Kancheepuram and Tiruvannamalai have a

		growing number of rice mills
Furniture	Previous patterns, sector production, labour elasticity, GDP contribution, anticipated investment	Tuticorin and Tiruvallur
Gems & Jewellery	Previous patterns, sector production, labour elasticity, GDP contribution, anticipated investment	All Districts
Handlooms & Handicrafts	Historical trends, village and khadi units	Madurai and Chennai
Leather	Previous patterns, sector production, labour elasticity, GDP contribution, anticipated investment	All Districts – Tamil Nadu accounts for a majority of leather tanning capacity in the state
Textiles	Historical trends, industry output, labour elasticity, contribution to GDP, expected investment, primary research insights	Tiruppur, Chennai and Erode, where readymade garments are manufactured; as well as Kancheepuram and Madurai, which are known for their traditional fabrics and cooperative spinning industries
BFSI	Historical trends in deposits, penetration of financial sector, expected growth, primary research insights	Chennai, Arasaradu, Anna Salai, Madurai
Construction	Historical trends, contribution to district GDP, labour elasticity, primary research insights. Several Projects such as: 1. Golden Quadrilateral 2. The Chennai Metro Rail Project, 3. The creation of new small ports 4. Upgrading of large ports, the international airport 5. Biotechnology Park 6. Port development operations 7. PCPIR zone	**Construction**: Sriperumbudur, Mahabalipuram. Nagapattinam and Cuddalore, **Real Estate:** Kancheepuram and Tiruvallur have experienced significant real estate development. **Industry Concentration:** The concentration of industries in Madurai and Coimbatore accelerates the construction of infrastructure.
Education	Historical enrolment data, student-teacher ratio, population trends, education spending, primary research insights	All Districts
Healthcare	Population trends, healthcare spending, primary research, healthcare access, and the estimated need for healthcare professionals	Vellore, Madurai and Coimbatore are also well-known media-city
IT and ITeS	Historical trends, SEZs, existing firms, expected growth	Coimbatore, Tirunelveli, Madurai, Salem, Trichy, and Hosur
Media & Entertainment	Media penetration, media spending, projected increase	Chennai and Madurai

Organized Retail	Previous patterns, the degree of retail market organization, labour intensity, anticipated growth	Madurai, Chennai and Coimbatore
Real Estate	Historical patterns of visitor arrivals, Department of Tourism goals and projected expansion	Chennai and the nearby districts of Kancheepuram and Tiruvallur, because of their close proximity to the city, have seen lot of real estate development. Concentration of industries in Coimbatore and Madurai adds momentum to the growth of infrastructural development
Tourism & Travel	Historical tourist arrival trends, Department of Tourism targets and expected growth	Kanyakumari, Kanchipuram and Dindigul are renowned destinations for pilgrims while the Nilgiris have been attracting tourists from all over the world. These districts have seen greater investment in tourist infrastructure and development. Madurai, Chennai and Coimbatore are growing cities and have younger demography of population with greater disposable incomes.
Transportation & Logistics	Historical trends, contribution to district GDDP, expected investment, employment pattern	Coimbatore, Salem and Erode, Chennai, Madurai-Tuticorin is being developed as an investment corridor.

2.2. It is anticipated that industries such as Retail, Travel, Hospitality & Tourism, and Construction will fuel the growing demand for skilled labour. Due to their status as a major industrial hub on the eastern coast, Chennai, Kancheepuram, and Thiruvallur are likely to require a significant amount of trained labour. Districts that are transitioning to higher levels of development like Cuddalore, Dindigul, Erode, Madurai, Salem, and Tiruchirappalli, are moderately developed and are expected to have a high demand for human resources in industries like IT, Automobiles, Construction, Food Processing, Textiles, and Retail. The youth aspiration survey indicates a considerable preference for employment in service industries like Retail, Banking, Hospitality, IT, and Transportation. A major challenge that the state faces is that employers in all industries and districts struggle with a lack of suitably skilled human resources. Smaller businesses face a significant barrier in finding qualified people, whereas larger companies may afford to set up captive training centres or perform campus recruitments at skill training schools. This is especially true for the case of Small-Scale Industries. Despite being included in the government's apprenticeship program, Tamil Nadu Skill Gap Assessment published by the National Skill Development Corporation frequently encounters challenges in locating qualified applicants.

2.3. Tamil Nadu has recently hosted the Global Investor Meet 2024 where it was revealed that the state has the highest number of SEZs in India, almost 54 and the highest number of factories estimated at 37.220. According to the Ministry of Commerce & Industry, Government of India, there are 40 operational SEZs (Central/Private/State Govt) in the state. 2 new SEZs have become operational from FY 2018-19. There are 543 operational units in 40 operational SEZs. Kanchipuram district, with 22 SEZs, has the greatest number of SEZs in the state.

2.4. The employment landscape in Tamil Nadu presents significant challenges, particularly in the informal sector, where a large portion of the workforce remains unskilled. Even in the formal sector, there is a significant gap between the skilled and unskilled population, which affects the overall employment and economic growth.

2.5. To address these challenges, it is imperative to implement strategies focused on upskilling the state's workforce based on the specific requirements of Tamil Nadu's industries. By offering targeted training and development programs aligned with local industrial needs, Tamil Nadu can ensure the availability of an industry-ready workforce capable of meeting the demands of the job market.

3. Industry Overview

3.1. Tamil Nadu has several advantages which makes it the hub for skill development and to thrive in the region. In Tourism, Tamil Nadu ranks first and sixth place in terms of domestic and foreign visitor arrivals in India respectively, in 2021. It is among the first states in India with access to complete metalled road. Strong human resource pool in the state is highly qualified, skilled, disciplined, productivity-oriented, and speaks English. Tamil Nadu is one of the top states in a number of industries and has a diverse industrial sector. Tamil Nadu's exports of IT and ITeS grew at a rate of 10% annually in 2018–19, reaching Rs. 1.39 lakh crore (US$ 19.9 billion).

3.2. The pro-development policies of the state to enhance the business output of the state that includes key policies in the state such as the Tamil Nadu Electronics Hardware Manufacturing Policy of 2020 which aimed to increase the state electronics industry output to US$ 100 billion by 2025. The Information and Communication Technology (ICT) Policy of 2018 to encourage investment in IT and ITeS enterprises, MSMEs, and start-ups, as well as to advance research

and the green IT industry. This is major boost to the IT & ITeS. Such policies will further increase the appetite of the state for skilled youth in these sectors. Skill development will serve the growing appetite of the nation with the boost to the PLI scheme and the state's policy of the 2021 Industrial Policy of Tamil Nadu. The manufacturing industry aims to grow at a 15% annual pace and attract investments worth Rs. 10 lakh crore (US$ 137.8 billion) by 2025.

3.3. According to the National Skill Development Corporation, the unorganized sector and the construction industry would have the largest incremental need for human resources. Retail, Food Processing, Travel and Tourism, Logistics, Textiles, and BFSI are anticipated to see a modest rise in the need for human resources. It is anticipated that the agriculture sector will require 37,000 fewer human resources in 2012–17 and 32,000 fewer in 2017–22.

3.4. The semi-skilled level has the biggest skill gap, with 14,000 in 2012–17 and 26,000 in 2017–22. It is estimated that there is a surplus of untrained human resources available. However, this disparity is anticipated to close by 2022 as more young people choose skilling. The difference is projected to be 7,000 at the skilled level in 2012–17 and 10,000 in 2017–22. The employment potentiality of the sectors is mentioned in the table below:

S.No.	Sectoral Interest	Employability Scope
1	Transport	High Employability Scope and High Youth Aspiration
2	Retail	High Employability Scope and High Youth Aspiration
3	Tourism	High Employability Scope and High Youth Aspiration
4	Travel	High Employability Scope and High Youth Aspiration
5	Electronics	High Youth Aspiration but Low Employment Potential
6	Media	High Youth Aspiration but Low Employment Potential
7	Communications	High Youth Aspiration but low employment potential
8	Food Processing	Low Employability and Low Youth Aspiration
9	Construction	Low Employability and Low Youth Aspiration
10	Agriculture	Low Employability and Low Youth Aspiration
11	Handloom	Low Employability and Low Youth Aspiration

4. Approach in Tamil Nadu

4.1. Tamil Nadu with a GER of 47, GPI of 1.01 and PTR of 16 is a pioneer in initiating and implementing the reforms in Higher Education space. Tamil Nadu has recently launched the **"Naan Mudhalvan Upskilling Platform"**, a massive industry relevant skill enhancement initiative for the Youth of Tamil Nadu.

4.2. Even though many reforms were undertaken by the state government, the problem of employability persists among the students from non-professional degree colleges, mostly from the GDCS in the state. Out of the 2829 colleges in Tamil Nadu, approximately 1000 colleges primarily offer general degree programs. These General Degree Colleges don't equip students with the necessary skill sets demanded by the industry, highlighting the urgent need to embed practical skills into their curriculum. Hands-on work experience provided during these degree courses in the form of apprenticeships will significantly enhance the employability of these students.

4.3. Tamil Nadu has been on a huge industrial & service sector growth path which will be an opportunity in terms of generation of skilled manpower for the same. Implementing Apprenticeship Embedded Degree Programs (AEDPs) across these sectors will not only enrich students' educational experience but also directly address the need for skilled manpower, fostering sustained economic growth. These programs offer hands-on work experience during degree courses, aligning education with industry requirements and enhancing students' employability.

Hence, as a policy & implementation objective, about 214 colleges in the state with a rational district-wise spread can be identified for a cohesive effort where every identified college offers skill-embedded degree programs. The programs would be degree courses integrated with industry demanded skills woven into the curriculum with apprenticeship/internship linkage as per the UGC stipulated credit structure and guidelines. Alignment of the colleges with industry would establish a relationship where dynamic changes in curriculum at pace with industry changes are affected, with the entire skilling component being imparted in accordance with the National Skill Qualification Framework (NSQF), regulated by the National Council for Vocational Education and Training (NCVET) under the umbrella of the Ministry of Skill Development and Entrepreneurship (MoSDE). For the education system in India, especially

colleges, the most direct, sustainable and credible industry-connect will come from the SSCs, whose mandate is to provide skilled work force to the industry group they represent. Cutting edge training is facilitated by the SSCs through Qualification Packages (QPs) designed based on National Occupancy Standards (NOS). Although there is an SSC for every industry vertical in the country, in this exercise, we are considering 10-11 SSCs, active in the college system.

4.4 As per extant UGC guidelines and the flexibility provided therein, skill integration into education can take place through:

(i) Full-fledged degree programs
(ii) 35-40 credit elective courses
(iii) 1-year diploma courses

Examples of full-fledged degree programs would be BBA (Logistics), BBA (Retail), B.Sc. (Life Sciences), BBA (Healthcare), B.Sc. (Tourism & Hospitality) etc. Industry Apprenticeship would be an integral part of such courses.

4.5 35-40 credit elective courses during second/third years in sectors like Green Jobs, Electronics, Media & Entertainment, Logistics, Agriculture etc., are also possible. On-the-Job Training (OJT) would be part of such courses.

5. Steps and Timelines

The following is the suggested timeline for starting of AEDPs from AY 2024-25. The State Government may consider and approve it so that all participating agencies follow it.

S.No.	Activity	Date for Completion	To be done by
1	Meeting with Govt., VCs, Colleges & SSCs	15.03.2024	CRISP & State Govt.
2	Signing of MoU between CRISP & State Govt.	15.03.2024	CRISP & State Govt.
3	Communication of Selected Colleges & AEDPs to CRISP	15.03.2024	State Govt
4	Curriculum Finalisation by CRISP and UGC Officers	15.03.2024	CRISP
5	Communication of Approved/ Scrutinized Curriculum to Universities	16.03.2024	CRISP

6	SSCs signing individual MoUs with Affiliating Universities or Autonomous Colleges	15.04.2024	State Govt., SSCs & Colleges
7	Approval by Universities BoS and Academic Council to selected colleges	30.04.2024	State Govt./Universities
8	Training of Teachers	01 to 31 May	SSCs / CRISP
9	Identification of Industries/Establishments for providing Apprenticeship	31.05.2024	SSCs
10	Classrooms & Labs Preparation	15 April to 15 June	Colleges
11	Information, Education & Communication (IEC) Programs (Coinciding with Admission Process)	15 June to 15 July	State Govt.
12	Preparation of Admissions Portal	01 to 15 July	State Govt.
13	Start of Classes	01.08.2024	Colleges

6. NISHE: Proposed Numbers for AY 2024-25

The following table highlights the proposed sector-wise AEDPs that CRISP envisages for the upcoming AY. The college numbers (with a class strength of 60 students each) have been projected after discussions with the SSCs on the estimated apprenticeship potential:

S.No.	Sector Skill Council (SSC)	Colleges for AY 2024-25	Students for AY 2024-25 (No of Colleges* 60 Students per batch)	Students for next 03 AYs (No of Colleges*60 Students per batch*3 years)
1	IT & ITeS	40	2400	7200
2	Banking, Financial Services & Insurance (BFSI)	20	1200	3600
3	Logistics	25	1500	4500
4	Tourism & Hospitality	25	1500	4500
5	Healthcare	20	1200	3600
6	Retail	20	1200	3600
7	Life Sciences	20	1200	3600
8	Media & Entertainment	20	1200	3600
9	Fashion Design	15	900	2700
10	Electronics	6	360	1080
11	Capital Goods	3	180	540
Total		**214**	**12,840**	**38,520**

7. Roles of Different Stakeholders

The exercise of introducing AEDPs in Tamil Nadu's colleges needs to commence from the academic year 2024-25 for the benefit of employability of students and enabling them to capture job opportunities across the state and country. In this exercise, the roles of different entities are very clear and laid out as follows:

7.1. Sector Skill Councils (SSCs)

i. The chief role of the SSCs is to bring industry standards into the skill component of the curricula, set occupational standards, provide course curriculum & Qualification Packages (QPs) for training, tie-up apprenticeship and carry out assessment & certification of students. The presence of the top companies of that sector in the Governing Body of each SSC provides a direct industry connect which is leveraged and utilized for demand-based skilling, apprenticeship, and employment. They are regulated by MoSDE through the National Skill Development Corporation (NSDC).

ii. SSCs will provide customization of the curriculum to evolve a basic degree or elective or diploma to cater to college-specific requirements.

iii. All SSCs have the capacity for carrying out Training of Trainers (TOTs) or Teachers' Training which would be the first exercise in Tamil Nadu after course choice by colleges and before launching the courses. The SSCs would help to select trainers or assign their training partners to a college only in case no suitable faculty is available for training. The fee chargeable by the SSCs for Training of Teachers is as per the prescribed common norms and is usually added to the annual fees of the student or met by the institution.

7.2. Colleges/Universities

i. The chosen colleges would have the responsibility of providing classroom space for the new programs as well as Wi-Fi connectivity. Certain sectors would require a laboratory facility for which the college may have to carry out some site preparation & purchase equipment so that the SSC can function. This will be a cost to the College/University undertaking certain courses like Electronics, Capital Goods, Apparel etc. They would also need to identify some of their own faculty for a Teachers' Training exercise. During the annual admission process, college principals would need to impart adequate publicity to the new skill-embedded courses on offer, highlighting their job relevance, apprenticeship & employment potential and prevent any awareness gap. SSCs will participate on their own

whenever required by the State Government in awareness generation activities, so that students across the state are well informed about the prospects of various skill-embedded courses. This can be carried out during the pre-admission period leading to counselling and course choice.

ii. College Principals would need to adopt a progressive and dynamic approach to the education system in their respective colleges and also motivate suitable faculty in their colleges to re-orient their minds & teaching methods to such skill-embedded courses which are very different from usual pedagogy. Principals must also be open to hiring contract faculty or trainers for the courses they may opt for in this sphere.

iii. State Universities may provide authorization to the affiliated colleges for offering skill-embedded courses. These courses are in line with UGC guidelines. Such an authorization by the Universities to their Colleges may be omnibus/generic and the colleges may not be required to seek approval of the University for every new course in future.

iv. State Universities may dedicate some space and manpower for setting up Centers of Excellence/ Common Facilities in selected sectors and prepare themselves for functioning as a Hub and Spoke model for higher end skills in favor of their affiliated colleges. Several SSCs/Industry Partners are eager in this regard and quick, facilitating decision making may result in several such Centers across the education landscape of Tamil Nadu.

This is a sustainable direction in which multi-sectoral, permanent industry-connect can be secured with minimal cost to the Government.

7.3. State Government of Tamil Nadu

i. The State Higher Education Department/Higher Education Council may accord approval/direction to all State Universities to undertake AEDPs by themselves and their affiliated colleges. Autonomous Colleges would be free from such an approval. This may be essential in states where a State University may require government approval to authorize its affiliated colleges to undertake new skill-embedded courses.

ii. The State Government has a very instrumental role to play in inviting high-CSR IT, Engineering and Service Sector Companies to adopt certain State Universities and Women's Colleges. Microsoft, Google, TCS, etc., can have focused interventions in certain educational institutions in providing labs, laptops, etc. CRISP opines that most Companies would participate in long-term curriculum provision and mentoring, provided the institutions come up with clear-cut proposals and have an interactive engagement. There are examples in other states where colleges have tied up with IT companies for a 3-year IT

course where the Company provides the entire content and guaranteed placement. Such an effort can be initiated in Tamil Nadu for about 10 colleges. Companies do respond positively to a government-led initiative.

iii. The entire process of college-course mapping, earmarking classroom and lab facility, identification of teachers for training/hiring trainers, finalizing course content with the SSCs, MoUs with the SSCs and awareness generation before admission process must be completed before formal admissions start. To meet such timelines, it is essential that the State Government/Universities give the go ahead to the identified colleges quickly so that college-course mapping can be concluded as per timelines indicated in point number 3.

***