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# National Initiative on Skill Integrated Higher Education (NISHE)

## Implementation of Apprenticeship Embedded Degree Programs (AEDPs) in Rajasthan 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 transformational 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, Andhra Pradesh, 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.

## 2. State Overview

**2.1**. Rajasthan, known for its rich heritage and cultural diversity stands before a significant economic advancement facilitated by the development of a skilled workforce. As per the projections from the Ministry of Health and Family Welfare, a steady increase in Rajasthan's working-age population (aged 15-59) is observed, with figures estimated to rise from 49.3 million in 2021 to 52.9 million by 2026 and further to 59.1 million by 2036.

**2.2**. The state's strategic location positions it to have access to approximately 40 percent of India's market. Rajasthan shares borders with five other states, including Punjab, Haryana, Uttar Pradesh, Madhya Pradesh, and Gujarat which serves as a crucial link between neighbouring states and the western coastline. This geographical advantage facilities seamless connectivity between the state and its neighbouring regions, contributing to its economic growth.

**2.3.** Rajasthan's economy heavily relies on its agriculture, industry, and tourism sectors, which could greatly benefit from a skilled workforce. Additionally, the state has witnessed significant growth in sectors like IT & ITES, Renewable Energy, and Logistics offering promising avenues for substantial employment opportunities. Jodhpur, Kota, Jaipur, and Udaipur are key hubs likely to offer opportunities for skilled workers across multiple sectors.

**2.4.** Key Sectors in Rajasthan:

| S No. | Sector | Key Activities | Prominent Companies | Major Industrial Hubs |
|---|---|---|---|---|
| 1. | Primary (Agriculture and Allied) | • Leading producer of oilseeds, rapeseed, and mustard in India.<br>• The state also ranks second in production of garlic, coriander, and cumin, and<br>• Hosts the second-largest milk production in the country. | Cargill, VB, DeVans, Bikaji | Rajasthan-wide |
| 2. | Secondary (Manufacturing) | • Major mineral production including granite, sandstone, marble, zinc, lead.<br>• Automotive and auto component manufacturing. | Honda, Hero, Ashok Leyland, JCB | Bhiwadi, Neemrana, Pathredi, Alwar city |
| 3. | Tertiary (Services) | • According to the Rajasthan Tourism Dept., the state witnessed a remarkable increase in domestic tourism, with over 179 million tourists visiting in 2023<br>• Additionally, Mahindra World City (MWCJ), the largest special economic zone (SEZ) in north India, is set up in Jaipur, hosting numerous global and domestic companies. | | Majorly Jaipur, Udaipur, Jodhpur, Jaisalmer and Ranthambore. |

**2.5**. The employment landscape in Rajasthan 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.

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

## 3. Industry Overview

**3.1.** The state is on a path of growth which will be an opportunity in terms of generation of skilled manpower, it is a necessity for those who are seeking employment in the new generation sectors. With proper skill training it can be expected that it will result in realignment of workforce distribution in the workforce.

| S No. | Sector | Growth Regions |
|---|---|---|
| 1. | **IT & ITes** | The state has four IT parks at Jodhpur, Kota, Jaipur, and Udaipur. A FinTech Park, in Japur is also in the pipeline. Bhiwadi is being developed as key hub for IT sector. |
| 2. | **Electronic System Design and Manufacturing (ESDM) sector** | Bhiwadi is a key producer of silver, copper, and silica- which are key inputs for ESDM products. A brownfield electronic manufacturing cluster (EMC) is coming up in Jaipur-Bhiwadi-Neemrana-Udaipur-Ajmer-Kota. Other two govt. approved EMCs are located at Salarpur and Karoli Industrial Areas. |
| 3. | **Renewable Energy** | Rajasthan has the highest installed solar generation capacity at over 16.5 gigawatt (GW). It is also among the top five Indian states for installed wind generation capacity. |
| 4. | **Tourism** | There are six UNESCO World Heritage monuments in the state, leading tourist sites include Jaipur, Udaipur, Jodhpur, Jaisalmer, Mount Abu, Dausa, Tonk, Pushkar, Sawai, Madhopur. |

| | | |
|---|---|---|
| 5. | **Logistics** | In terms of logistics, Rajasthan has the third largest highway network, second largest rail network, nine inland container depots, seven airports offering international and domestic flights and air cargo complex. Key clusters: Bhilwara, Jodhpur, Alwar, Jaipur |
| 6. | **Retail** | Jaipur is one of the top ten key retail clusters. According to NSDC Industry Reports: Human resource and Skill requirement, 1.21 million employments in Rajasthan is projected for the retail sector. |
| 7. | **Textile** | Rajasthan is India's largest producer of blender fabric and wool. Major apparel and textile hubs in the state are Bhilwara, Pali, Balotra and Jaipur. |

**3.2.** According to the National Skill Development Report 2021-2022, the state has urgent need of professionals in the following sectors. **The table below details the requirement in the year 2021-2022 in the following sectors**

| S.No. | Sector | Required Manpower |
|---|---|---|
| 1. | **Education and Training** | 3,80,800 |
| 2. | **Banking and Financial Services** | 9,64,300 |
| 3. | **Communication** | 6,39,700 |
| 4. | **Hospitality** | 3,30,900 |
| 5. | **Retail** | 1,783,700 |

| | | |
|---|---|---|
| 6. | **Transportations and Logistics** | 9,62,100 |
| 7. | **Healthcare** | 1,87,800 |
| 8. | **IT&ITES** | 1,31,700 |
| 9. | **Construction** | 11,35,000 |
| 10. | **Manufacturing of Electrical Products** | 9,500 |
| 11. | **Textiles** | 74,800 |
| 12. | **Auto and Auto Components** | 24,900 |
| 13. | **Mineral Processing** | 50,000 |
| 14. | **Construction Based Material** | 28,300 |
| 15. | **Chemical & Chemical Products** | 90,500 |
| 16. | **Paper & Paper Products** | 12,900 |
| 17. | **Fabrication** | 21,500 |
| 18. | **Food Processing** | 170,600 |
| 19. | **Rubber and plastics products** | 26,800 |
| 20. | **Pharma & Medicinal Products** | 7,600 |
| 21. | **Agriculture Allied Activities** | 782,000 |

## 4. Approach in Rajasthan

**4.1.** Rajasthan has one of the best Institutes of National Importance like IIT Jodhpur, IIT Kota, AIIMS Jodhpur, and IIM Udaipur along with several other major engineering, medical, and management institutions providing employment opportunities. However, a challenge lies in the employability of students pursuing degrees such as B.A., B.Sc., and B. Com within the state. Out of the 3934 colleges in Rajasthan, approximately 2521 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.

**4.2.** Rajasthan's agriculture, industry, and tourism sectors contributes majorly to its economy. Additionally, the state has witnessed significant growth in sectors like gems and jewellery, handicrafts, IT, electronics, automotive/auto components, and textiles, all contributing substantially to its economic development. The state is on a path of growth which will be an opportunity in terms of generation of skilled manpower. 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 107 colleges in the state with a rational district-wise spread may be identified as a pilot for a cohesive effort where every identified college offers Apprenticeship Embedded degree programs. The courses would be degree programs, 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 which are active in the college system.

**4.3.** 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.

**4.4.** 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 State Government, State Higher Education Council, CCE, Universities and Colleges have to work in tandem with CRISP for the smooth launch of AEDPs in the state. The following timelines are desirable to be maintained:

| 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 | Curriculum Finalisation by CRISP and UGC Officers | 15.03.2024 | CRISP |
| 4 | Communication of Approved/ Scrutinized Curriculum to Universities | 16.03.2024 | CRISP |
| 5 | Communication of Selected Colleges & AEDPs to CRISP | 15.03.2024 | State Govt |
| 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 03 AYs

**6.1.** The following table highlights the sector-wise projected number of colleges for the state and students to be targeted to be implemented over the next three academic years. The college numbers (with a class strength of 60 students each) have been projected after discussions with the SSCs on the estimated apprenticeship potential.

| Courses | Proposed No. of Colleges | Proposed No. of Students |
|---|---|---|
| **Tourism & Hospitality** | **25** | **1500** |
| **IT & ITeS** | **20** | **1200** |
| **BFSI** | **15** | **900** |
| **Logistics** | **10** | **600** |
| **Healthcare** | **10** | **600** |
| **Retail** | **10** | **600** |
| **Life Sciences** | **5** | **300** |
| **Media & Entertainment** | **5** | **300** |
| **Fashion Design** | **5** | **300** |
| **Electronics** | **1** | **60** |
| **Capital Goods** | **1** | **60** |
| **Total** | **107** | **6420** |

## 7. Roles of Different Stakeholders

The exercise of introducing AEDPs in Rajasthan'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 Rajasthan 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 Rajasthan.

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 Rajasthan

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 Rajasthan 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.

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# FAQs on AEDPs

**1. What are Sector Skill Councils (SSCs)? Are they government or private? Why are they charging money from colleges?**

Ans: Sector Skill Councils (SSCs) are formed by the Ministry of Skill Development and Entrepreneurship (MSDE) along with leading industries in that sector. The National Skill Development Council (NSDC) of the MSDE has formed the SSCs along with the Industry to develop the occupational standards and to pioneer high quality skill programmes. More details are here: https://nsdcindia.org/sector-skill-councils

SSCs are Section 8 companies operating on no-profit-no-loss basis. They have to generate income for running their operations. They don't get Govt subsidy for their running expenses. So, they charge fee as per common norms for their programme interventions. All these are under the strict control of the Ministry of Skill Development, Govt of India.

For the Govt colleges, CRISP made a request to charge a reduced fee since the students are from economically poorer sections, while private colleges are charged the usual fee. This fee is for the full range of services of the SSC, covering curriculum, teachers training, apprenticeship linkage and assessment.

**2. How are SSCs linked with the Industry Experts?**

Ans: SSCs are industry bodies represented by the industry leaders and therefore are directly linked with the industry experts.

**3. Who are preparing the curriculum for AEDPs i.e., SSCs or Industry?**

Ans: NSDC supervises the curriculum preparation by the SSCs. All the job role-based qualification packages used in the curriculum are examined by the National Council for Vocational Education and approved.

**4. Who will award the Degrees i.e., Universities or SSCs or Joint Degrees?**

Ans: Degrees are awarded only by the Universities.

5. **What is the validity of the Degrees awarded by the SSCs or Joint Degrees? Are these Degrees valid for Government Exams and Foreign Studies?**

   Ans: SSCs don't award degrees. They only facilitate the creation of curriculum, transaction and also assessment. Only Universities are authorised to award degrees. The Degrees are as per UGC approval and valid for Government Exams and higher studies.

6. **What is the difference between AEDP and Skill-Embedded Degree Program?**

   Ans: in AEDPs the Apprenticeship is a mandatory part of the course curriculum. Skill-embedded Degree courses may not have apprenticeships.

7. **Why can't we implement the 3+3 formula (3 days classes and 3 days apprenticeship) for all the AEDPs?**

   Ans: Mainly because of want of industries/establishments nearby. It is not possible to travel to metro cities for 3 days a week for students in interior districts. In such cases, the Apprenticeship would be continuous for one or two whole semesters towards the end of the course.

8. **Can we implement the AEDPs as part of our Regular Degree Programs? For example, can we implement Retail for 02 semesters in BBA or B.Com.?**

   Ans: It has to be a complete course of 3 years to get a degree of BBA (Retail). Apart from this, we are trying to introduce subjects (from retail and such other areas) which can be taken as optional papers. But in that, apprenticeship will not be available.

9. **Can we implement the AEDPs as one year diploma programs with apprenticeship?**

   Ans: No. We need full 3 years to study the subject and attain skills as per requirements of the industry.

10. **Do we have any employment-oriented short term training course for the students which the colleges can implement?**

    Ans: We don't believe in short cuts. The skill has to be learnt in full for being of any use in the market.

**11. Can we implement skill-oriented online certification courses directly or in association with the industry?**

Ans: There are some skill-oriented online courses available to everyone. But we believe that learning of skill has to be hands-on. So, we are not supporting such ventures.

**12. What is the difference between Internship and Apprenticeship?**

Ans: Internship is informal. Apprenticeship is formal. Apprenticeship is governed by a Central Act, is a contract between the company and student. It carries stipend as per prevalent minimum wage rate.

**13. What is the difference between Apprenticeship Training and On the Job Training?**

Ans: Only difference is that Apprenticeship is governed by a Central Legislation. Apprenticeship is for a minimum period of 6 months while on- the- job training is of much shorter duration.

**14. What are the advantages / benefits of implementing AEDPs for students and colleges?**

Ans: You will prepare industry- ready students with skill-sets who will walk into the jobs after their degree programme. Employability is 100% (unless the student fares badly)

**15. What is National Apprenticeship Promotion Scheme (NAPS)?**

Ans: This is a scheme of Govt of India launched to encourage industries to take Apprentices in their establishments. Under this, Govt reimburses 25% of the stipend paid to the Apprentices by industry, subject to a maximum of Rs. 1,500. It is paid as direct benefit transfer to the account of the Apprentice.

**16. Are the colleges implementing AEDPs covered under the NAPS? How can the colleges register under the NAPS?**

Ans: Colleges need not bother about NAPS. That would be taken care by the industries/establishments who need to enrol under NAPS. NAPS is an arrangement between Govt and the industrial establishments.

**17. How can colleges design the industry-oriented curriculum by inviting the Industry Experts directly i.e., by excluding the SSCs?**

Ans: It is possible but difficult. It needs dedicated work by both the college and the industry working together. There are some such examples like Dayalbagh university. But it is nearly impossible to replicate it on scale since such skill expertise is not available with the colleges.

**18. What will happen if the University's Board of Studies (BoS) doesn't give approval after starting the AEDP?**

Ans: Colleges need to take this permission from universities in advance. Govt of Rajasthan is facilitating this only for the first year. It is an important responsibility of the college/ University/ Government.

**19. What should colleges do if the students don't receive the promised compensation during their apprenticeship and students aren't placed?**

Ans: In the unlikely event of apprenticeship stipend not being paid to student, there will be a complaint redressal mechanism set up by Govt of Rajasthan for receiving and redressing such grievances. Placement however is the prerogative of industry, which is based on their requirement and merit of a successful apprentice.

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