

## IMPACT OF SKILL BASED EDUCATION ON ENGINEERING STUDENTS' PLACEMENTS TRAITS: A STUDY ON SELECT ENGINEERING COLLEGES IN ANDHRA PRADESH

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### **Abstract**

*This study will examine the impact of skill-based education on the placement traits of engineering students in select colleges across Andhra Pradesh. It will explore how the integration of practical skills and industry-relevant competencies into the academic curriculum will enhance students' employability and preparedness for the job market. By focusing on key placement traits such as adaptability, problem-solving abilities, and the development of soft skills, the study will analyze how skill-based education aligns students' capabilities with industry expectations. Additionally, it will assess district-wise participation in skill development programs, identifying regional disparities and recommending interventions to ensure more equitable access to skill enhancement. The findings will highlight the role of industry collaborations, internships, and work-integrated learning in improving placement outcomes and job readiness, emphasizing the importance of skill-based education in shaping the future success of engineering graduates.*

**Key words:** *Activity based training, APSSDC, Disparities, Engineering.*

### **1 Introduction**

The landscape of education and employment has witnessed a significant transformation in recent years. The traditional model of education, which predominantly emphasized academic knowledge and theoretical learning, is evolving to meet the dynamic demands of the contemporary job market. Skill-based education has emerged as a crucial catalyst in preparing students for placements and successful careers. The present study provides an in-depth examination of the role of skill-based education in enhancing placement opportunities for students.

Historically, academic qualifications and degrees were often considered sufficient to secure employment. However, in today's highly competitive and rapidly changing job market, a noticeable gap has emerged between what educational institutions offer and what employers require. While the traditional education system holds value, it frequently falls short in equipping students with the practical skills, competencies, and adaptability needed to excel in their chosen fields (World Economic Forum, 2020).

Skill-based education, by contrast, focuses on providing students with hands-on learning experiences, problem-solving abilities, and real-world applications of knowledge. This pedagogical shift aims to bridge the gap between theoretical learning and practical application. It recognizes that employers increasingly seek candidates who not only possess a strong academic foundation but also have the practical skills necessary to contribute effectively from the outset (UNESCO, 2016).

A distinctive feature of skill-based education is its emphasis on the development of both technical and soft skills. In addition to acquiring job-specific competencies, students are encouraged to cultivate

essential attributes such as communication, teamwork, critical thinking, adaptability, and leadership. These soft skills are as crucial as technical expertise for today's workforce, enabling individuals to navigate complex work environments and collaborate effectively with colleagues and clients (National Skill Development Corporation [NSDC], 2019).

Moreover, skill-based education fosters a collaborative relationship between educational institutions and industries. Through joint efforts, curricula are designed to remain relevant and up-to-date with evolving job market demands. This alignment allows students to gain practical experience through internships, cooperative education programs, and industry partnerships, enhancing their readiness for employment (Confederation of Indian Industry [CII], 2021).

In this context, the intersection of skill-based education and placements is particularly significant. Graduates of skill-based programs are not only better equipped with job-relevant competencies but are also more adept at demonstrating their practical skills during interviews and assessments. As a result, they enjoy higher placement rates, lower instances of underemployment, and a heightened sense of job satisfaction. This introduction sets the stage for a comprehensive exploration of the pivotal role of skill-based education in placements, underscoring the critical shift occurring in the educational landscape and the need for institutions, policymakers, and industries to embrace and promote skill-centric learning.

## **2 Significance of Skill-Based Education**

The importance of skill-based education has been widely recognized on both national and global levels. The Organisation for Economic Co-operation and Development (OECD) highlighted the necessity for youth to acquire inclusive development through skill-based learning in its Programme for International Student Assessment (PISA) Global Competence Framework (OECD, 2019). This framework emphasizes the importance of developing global competencies that enable young people to face both domestic and international challenges.

Similarly, the United Nations' Sustainable Development Goals (SDG) Agenda 2030 underscores the role of skill-based education in promoting sustainable development. By equipping learners with the knowledge and skills necessary to foster economic growth, social inclusion, and environmental sustainability, skill-based education plays a pivotal role in achieving global sustainability goals (United Nations, 2015).

In the era of globalization and technological advancement, developing a skilled workforce is essential for national competitiveness. Emphasizing skill development allows countries to enhance their economic resilience and attract global opportunities. In India, where the availability of manpower is high but often lacks industry-relevant skills, integrating skill-based education with market needs is crucial to improving employability and fostering entrepreneurship (FICCI & EY, 2017).

One of the major challenges faced by the Indian job market is the mismatch between the skills possessed by graduates and those demanded by employers. Skill-based education addresses this gap by offering practical training and real-world experiences. This approach nurtures an entrepreneurial mindset, encouraging individuals to start their own businesses, thereby contributing to economic independence and job creation (NSDC, 2019). Additionally, skill-based education helps individuals stay relevant in a rapidly evolving job market by keeping them updated with the latest technologies and practices. It also plays a critical role in social inclusion by providing marginalized communities with opportunities for

skill development, empowering them to become financially independent and contribute to societal progress (ILO, 2018).

The significance of skill-based education in India lies in its potential to address unemployment, drive economic growth, promote entrepreneurship, and ensure that the country's workforce remains competitive and adaptable in a globalized world. By instilling adaptability and a mindset of lifelong learning, skill-based education equips individuals to navigate career shifts and challenges with confidence, thereby fostering inclusive and sustainable development.

### **3. Review of Literature**

A brief and concise review of existing literature is presented here.

Skill-based education emphasizes the development of practical, transferable skills alongside academic knowledge, equipping learners with competencies directly applicable in real-world settings (Hager et al., 2012). Kivunja (2015) highlighted that this approach shifts the focus from theoretical knowledge to hands-on learning, responding to employers' growing demand for job-specific skills. Authors argue that skill-based education represents a paradigm shift in workforce preparation.

Ansari (2017) conducted a field study on engineering students' perceptions of campus recruitment, based on 523 respondents. The study applied conformity factor analysis and found that course standards, campus training, and soft skills significantly influenced recruitment outcomes, while college infrastructure and recruitment patterns were insignificant.

Gupta and Singh (2018) found that skill-based education directly impacts placements, with students undergoing skill-centric training better equipped to meet employer expectations. This resulted in improved placement rates, reduced underemployment, and higher job satisfaction.

Chugh and Sangwan (2019) emphasized that skill-based education promotes collaboration between educational institutions and industries, aligning curricula with job market demands. This collaboration benefits students through industry exposure, internships, and experiential learning.

Batool and Malik (2020) argued that in addition to technical skills, skill-based education places significant emphasis on developing soft skills such as communication, teamwork, critical thinking, and adaptability, which are essential for success in professional environments.

Oh (2020) critiqued the skill-based approach to scientific inquiry, arguing that it fails to adequately prepare students for the complexities of scientific challenges. Jagtap and Dorge (2020) found a significant gap between students' skills and industry requirements, revealing that 60% of engineering graduates lacked the necessary skills, which could adversely affect their future prospects.

The Manipl Editorial Team (2023) reported that interpersonal skills, problem-solving abilities, collaboration, and competencies are crucial for placement success. The report emphasized that employability skills improve through skill development, industry exposure, networking, and confidence building.

Hughes et al. (2023) conducted a longitudinal study involving 618 students and their line managers. The results showed an increase in eight competencies among students, with those learning directly from line managers demonstrating higher skill improvements.

#### 4. Objectives

The study deals with the following objectives.

- a) To examine the impact of skill based education on Placement traits.
- b) To analyze the progress of Skill Development in Andhra Pradesh.
- c) To ascertain the district wise and activity wise participation of students in the Skill Development programs in Andhra Pradesh.

#### 5) Methodology

The study is exclusive based on secondary sources of data collection. These include NSDC, FICCI, ILO, CII, OECD reports, journals, articles, newspaper references and the reports of skill development centres in Andhra Pradesh. The study will explore the facts supporting to the base to analyze the impact of Skill based education on placement traits in Engineering Colleges in Andhra Pradesh state.

#### 6) Impact of Skill-Based Education on Placement Traits

Skill-based education plays a transformative role in shaping the placement traits of engineering students. By integrating practical skills and industry-relevant competencies into the academic curriculum, students significantly enhance their employability and readiness for the job market. The following points outline the impact of skill-based education on placement traits:

1. **Enhanced Employability:** Skill-based education equips engineering students with hands-on skills and practical knowledge that directly align with industry requirements. This alignment makes them more attractive to employers, as they are prepared to contribute effectively from their first day on the job (NSDC, 2019).
2. **Industry Relevance:** Emphasizing skills in demand within the engineering sector ensures that students possess the necessary expertise sought by employers. This relevance boosts their chances of securing positions with top companies and organizations (FICCI & EY, 2017).
3. **Adaptability and Versatility:** A skill-based approach trains students to adapt to dynamic work environments and technological advancements. This adaptability enhances their placement traits by making them versatile and capable of handling diverse roles and challenges within the engineering domain (ILO, 2018).
4. **Problem-Solving Abilities:** Practical skill development often includes real-world projects and problem-solving exercises. Engineering students trained in such environments develop stronger analytical and problem-solving capabilities, which are highly valued by employers and positively influence placement outcomes (CII, 2021).
5. **Soft Skills Development:** In addition to technical expertise, skill-based education emphasizes the cultivation of soft skills such as communication, teamwork, leadership, and time management. These attributes are essential for professional success and play a pivotal role in enhancing students' placement prospects (OECD, 2019).
6. **Industry Collaborations and Internships:** Many skill-based programs foster partnerships with industries, offering internships and work-integrated learning experiences. These opportunities expose students to real-world work environments, improving their practical skills and making them more job-ready (UNESCO, 2016).
7. **Higher Placement Rates:** Institutions that offer skill-centric programs tend to achieve higher placement rates. Employers prefer candidates with relevant skills and hands-on experience, and graduates of skill-based education programs meet these expectations effectively (World Economic Forum, 2020).

### Statistical Analysis on Progress of Skill Development

Engineering higher education is transforming. Traditionally, institutions hired doctoral faculty, creating a gap between academic learning and industry experience, contributing to graduates' lack of market-ready skills (Kumar, 2023).

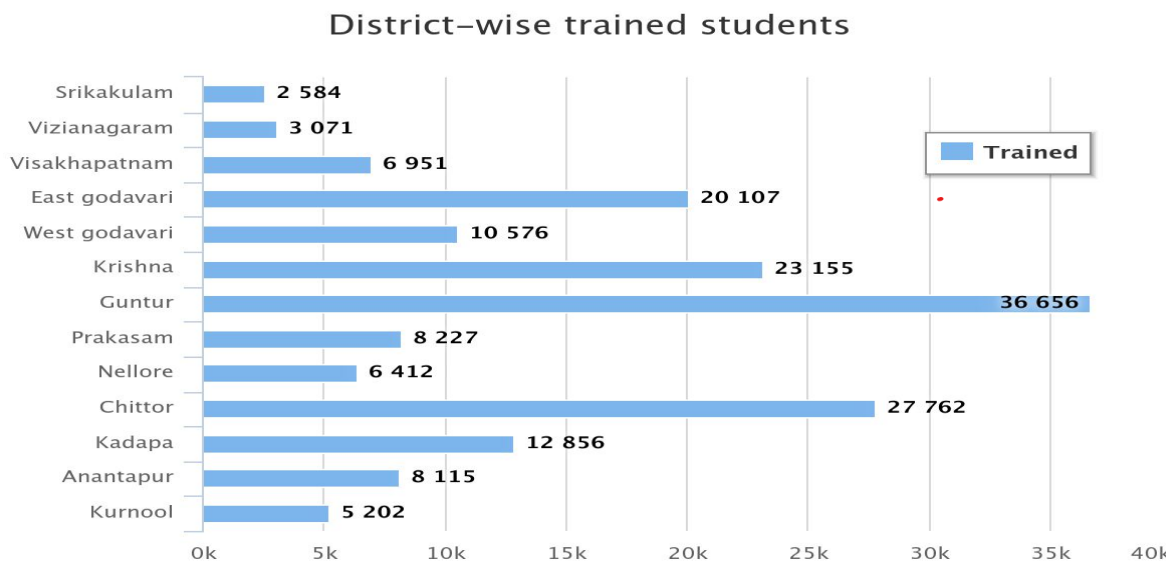
A promising change is the 'Professor of Practice' model, which brings industry professionals into academia, offering practical insights and bridging the academic-industry divide (Sharma & Gupta, 2022). Though in its early stages, this shift is significant.

India produces 1.5 million engineering graduates annually. While companies train these graduates before deployment, this model is unsustainable. The fast-changing tech landscape calls for rethinking the four-year curriculum (NASSCOM, 2021).

Educational institutions must create industry-integrated programs. Courses emphasizing practical application, technological advancements, and collaborative projects will ensure graduates are job-ready and innovative (AICTE, 2020). This approach could redefine engineering education, making it dynamic, relevant, and future-focused.

### 8) District wise Analysis

The district wise trained students from the 13 united districts of Andhra Pradesh state is shown in figure-1.



**The chart illustrates the number of students trained across different districts of Andhra Pradesh. Here's a quick interpretation**

- Guntur leads with the highest number of trained students at 36,656, followed by Chittoor with 27,762 and Krishna with 23,155.
- East Godavari and West Godavari also show significant numbers, with 20,107 and 10,576 trained students, respectively.
- Districts like Kadapa (12,856) and Prakasam (8,227) fall in the mid-range.
- On the lower end, Srikakulam (2,584), Vizianagaram (3,071), and Kurnool (5,202) have the fewest trained students.



- e. The chart reflects a clear district-wise disparity, indicating areas where training initiatives could be scaled up to ensure more balanced skill development.

### 9) Analysis on Activity wise participation in Skill Development in Andhra Pradesh

Table-1 presents the activity wise number of centres, colleges, batches and trainees statistics for the 5 select activities. These included the number of students who have completed training, active training status, students participated in skill improvement programs, placement improvement programs and Faculty participation in improvement programs for providing effective skill-based training is presented.

**Table-1: Activity based Training availed students**

Activity	Centres	Colleges	Batches	Trainees
Completed Training	359	359	65820	660064
Active training	198	198	2113	27683
Skill Improvement Program	486	486	14914	204380
Placement Improvement program	55	55	112	8668
Faculty Improvement program (for faculties)	—	120	24	5759

The table presents a comprehensive overview of various training programs, highlighting their reach and impact. The Completed Training category shows significant progress, with 359 centres and colleges conducting 65,820 batches, benefiting 660,064 trainees. Currently, Active Training is ongoing in 198 centres, with 2,113 batches and 27,683 participants. The Skill Improvement Program stands out with a notable engagement, involving 486 centres and colleges, 14,914 batches, and 204,380 trainees, reflecting a strong emphasis on enhancing technical and professional competencies. The Placement Improvement Program, though smaller in scale, supports 55 centres with 112 batches and 8,668 trainees, aiming to boost employability outcomes. Additionally, the Faculty Improvement Program focuses on academic staff development, with 120 colleges conducting 24 batches, training 5,759 participants, though the number of participating centres is not specified. Overall, the data suggests a well-structured and impactful training ecosystem, with particular attention to skill enhancement, employment readiness, and faculty upskilling.

Apart from the above mentioned training programs, through AP Skill Development centre, in 7 districts, 22 colleges are engaged in Digital Literacy program and a total of 1187 trainers are organizing the Digital Literacy program and 59479 trainees have availed digital literacy program. The financial literacy programs are initiated in 12 districts, 18 colleges have availed financial literacy program and 1640 trainers have actively involved to provide training to 31985 trainees. The overall statistics show that, 68000 students have enrolled and participated in 164 campus drives. The placements are associated with 38 partners and a total of 20500 jobs were provided.

The state government has enabled over 1.36 lakh students to receive free certifications through the e-learning platform edX, totaling \$18,031,083 (over ₹150 crore). Students enrolled in 1,450 courses, with popular subjects including data analysis, machine learning, and business management. Notably, more than 54,000 students earned certifications in computer science-related courses, and over 31,000 in data analysis and statistics. The initiative, reflecting the government's goal to upskill youth for global competitiveness, has seen significant participation, with students registering for courses worth \$51.7 million (₹431 crore) (AP State Council of Higher Education, 2025).

## Conclusion

In conclusion, skill-based education significantly enhances engineering students' placement traits by making them job-ready, adaptable, industry-relevant, and equipped with a comprehensive skill set. This educational approach not only improves their likelihood of securing positions with reputable organizations but also ensures they can thrive and contribute meaningfully in their engineering careers.

Skill-based education plays a pivotal role in enhancing the placement traits of engineering students by aligning their competencies with industry needs. This approach not only boosts employability but also ensures that students possess the technical and soft skills sought by employers. Key aspects such as adaptability, problem-solving abilities, and strong communication skills are integral to the success of graduates in the competitive job market (NSDC, 2019; OECD, 2019). Moreover, collaborations between educational institutions and industries, such as internships and work-integrated learning programs, significantly improve students' readiness for real-world challenges (UNESCO, 2016; FICCI & EY, 2017).

The district-wise analysis of skill training in Andhra Pradesh reveals significant regional disparities in trained students, with districts like Guntur, Chittoor, and Krishna leading in numbers. However, areas such as Srikakulam, Vizianagaram, and Kurnool lag behind, indicating the need for targeted interventions to ensure equitable skill development across the state.

Data from various skill development programs further underscores the importance of structured training initiatives. Notably, the Skill Improvement Program has had the widest reach, benefiting over 200,000 trainees. The Placement Improvement Program, although smaller in scope, focuses on enhancing employability outcomes, while Faculty Improvement Programs support academic staff in providing effective training. Additionally, digital and financial literacy programs have been successfully rolled out, with over 59,000 trainees benefiting from digital literacy and 31,000 from data analysis and business management courses through government initiatives.

In conclusion, skill-based education and training programs have shown a positive impact on students' employability and placement outcomes, particularly in regions with strong training infrastructure. The growing emphasis on practical, industry-aligned learning and soft skills development is essential to ensuring that graduates are well-equipped to meet the evolving demands of the job market. Furthermore, government initiatives such as the provision of free certifications and global exposure through platforms like edX highlight the state's commitment to upskilling youth for global competitiveness.

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