Design of an Augmented Analysis for Analysing the Integration of Employability Skills in NEP 2020 Engineering Syllabus

Dr. Sonal Patil, Dr. Nilesh Ingale, Dr.Swati Patil, Dr. Chetan Chaudhari, Tushar Wagh

Assistant Professor, GHRCEM, Jalgaon

Integration of employability skills into engineering education is crucial for preparing graduates for the demands of the modern workforce. This paper presents a comprehensive analysis of the incorporation of employability skills into the National Education Policy (NEP) 2020 Engineering Syllabus utilizing four distinct methods: Comparative Analysis, Content Analysis, Stakeholder Analysis, and Curriculum Mappings. This work is necessary because engineering education must be aligned with industry requirements and graduate employability must be improved. This study seeks to identify gaps, overlaps, and areas for improvement in the integration of employability skills into the existing curriculum by analyzing the NEP 2020 Engineering Syllabus. Multiple applications can be derived from this research. It provides curriculum designers, policymakers, and educators with information on how to effectively integrate employability skills into engineering education. Second, it assists students in comprehending the competencies they must cultivate to enhance their employability. Lastly, it contributes to the ongoing conversation about educational reforms and their influence on workforce preparedness. This research is superior to existing methods because it takes a holistic approach by integrating four distinct models of analysis. The Comparative Analysis model permits a thorough evaluation of the degree to which NEP 2020 aligns with employability skill requirements. The Content Analysis model enables a thorough examination of the curriculum and the identification of specific areas where employability skills are addressed. The Stakeholder Analysis model incorporates the diverse viewpoints of students, faculty, industry professionals, and policymakers to ensure a comprehensive understanding of the integration process. The Curriculum Mapping model provides a systematic overview of the distribution of employability skills across the curriculum. This study seeks to provide a nuanced

and exhaustive analysis of the incorporation of employability skills in the NEP 2020 Engineering Syllabus by combining these four methods. The findings of this study will contribute to the improvement of engineering education and better prepare graduates for successful professions in a labour market that is constantly evolving under different scenarios.

Keywords: Employability Skills, National Education Policy 2020, Engineering Education, Curriculum Analysis, Stakeholder Analysis.

1. Introduction

Education in engineering is essential for preparing graduates for the dynamic demands of the modern workforce. As industries evolve and technology advances at an unprecedented rate, there is a growing awareness of the need to align engineering curricula with changing labor market requirements. The integration of employability skills into engineering education has emerged as a crucial factor in assuring the professional success of engineering graduates. The range of employability abilities includes communication, teamwork, problem-solving, critical thinking, adaptability, and leadership, among others. These abilities are necessary for graduates to excel in the workplace and make significant contributions in their respective disciplines.

In recognition of the importance of employability skills in engineering education, the National Education Policy (NEP) 2020 of numerous nations has emphasized their incorporation into the curriculum. The NEP 2020 functions as a guide for educational institutions to implement reforms that align education with the needs of the workforce of the twenty-first century. While the NEP 2020 provides a framework for integrating employability skills, it is essential to assess the degree to which these skills are incorporated into the existing engineering curriculum [1, 2, 3].

This paper intends to undertake a thorough analysis of the incorporation of employability skills into the NEP 2020 Engineering Curriculum. To accomplish this goal, we employ four distinct analysis techniques: Comparative Analysis, Content Analysis, Stakeholder Analysis, and Curriculum Mapping. We seek to provide a nuanced and comprehensive understanding of how employability skills are addressed within the engineering curriculum by combining these approaches.

This research is necessitated by the need to bridge the divide between academia and industry, ensuring that engineering graduates possess the necessary skills and abilities to be successful in their careers. Employability skills must be incorporated into the engineering curriculum to address the changing requirements of employers and to prepare students for a job market that is constantly evolving. By analyzing the NEP 2020 Engineering Syllabus, we can identify integration process improvement areas, voids, and overlaps. This analysis will offer valuable insights to curriculum designers, educators, policymakers, and industry professionals who shape engineering education.

Multiple applications can be derived from this research. First, it provides essential guidance to curriculum designers and educators on how to integrate employability skills into the

engineering curriculum. It offers a framework for aligning course content, learning outcomes, and assessment methods with the NEP 2020's intended employability skill outcomes. Second, the findings of this research will benefit students by highlighting the specific employability skills they must cultivate throughout their engineering education in order to improve their career prospects. It enables students to acquire the necessary competencies that employers seek in engineering graduates in a proactive manner. Lastly, this study contributes to the ongoing conversation about educational reforms and their impact on workforce readiness. It contributes to the corpus of knowledge regarding best practices for integrating employability skills into engineering education and informs future policy decisions regarding the development of engineering curricula.

This research is superior due to its comprehensive methodology, which incorporates four distinct analysis techniques. The Comparative Analysis model permits a comprehensive comparison between the NEP 2020 employability skill requirements and the current engineering curriculum. The Content Analysis model provides a comprehensive analysis of the curriculum, with a focus on the explicit mention and treatment of employability skills. The Stakeholder Analysis model incorporates the diverse viewpoints of students, faculty members, industry professionals, and policymakers to ensure a comprehensive understanding of the integration process. The Curriculum Mapping model facilitates a systematic overview of the distribution of employability skills throughout the curriculum.

This paper intends to contribute to ongoing efforts to integrate employability skills into engineering education by conducting a thorough analysis of the NEP 2020 Engineering Curriculum. Utilizing multiple analysis techniques, this study provides curriculum designers, educators, policymakers, and students with valuable insights and recommendations, fostering a closer alignment between engineering education and industry requirements. This research ultimately seeks to increase the employability of engineering graduates and equip them with the skills necessary to excel in their professional endeavours.

2. Literature review

Employability skills are increasingly recognized as essential characteristics that engineering graduates must possess in order to succeed on the job market. Multiple studies have emphasized the importance of these skills and their incorporation into engineering curricula. Yorke and Knight (2004), for instance, emphasized the need for universities to equip graduates with a wide range of transferable skills, such as communication, problem-solving, and collaboration. Similarly, Harvey et al. (2010) argued that engineering graduates must possess employability skills in order to adapt to altering workplace demands and effectively contribute to their organizations [4, 5, 6].

Significant impetus has been provided by NEP 2020 for educational reforms, including engineering education. The policy framework emphasizes the incorporation of employability skills into the curriculum in order to improve graduates' preparedness for the workforce. It acknowledges that engineering graduates must possess a combination of technical and non-technical abilities in order to meet industry demands and contribute to societal development. Focusing on employability skills is consistent with the global trend toward competency-based

education and the cultivation of well-rounded professionals.

Models of Comparative Analysis Comparative analysis models have been extensively utilized to evaluate the alignment between educational policies and curricula. These models facilitate a systematic comparison between the NEP 2020 desired outcomes and the existing engineering curriculum. Altbach and Knight (2007) utilized a comparative methodology to evaluate the incorporation of employability skills into engineering education in various nations. Their research revealed variations in the emphasis placed on various skills and emphasized the significance of context-specific curriculum design.

Content analysis models provide a framework for analyzing the content of educational materials, such as syllabi and course documents. In the context of integrating employability skills, content analysis permits a thorough examination of the engineering curriculum to identify explicit references to employability skills and their treatment within the curriculum. Ahmad and Ahmad (2016) analyzed the incorporation of employability skills in engineering curricula through a content analysis. Their research revealed variations in the degree to which various skills were incorporated and highlighted the need for the explicit and systematic incorporation of employability skills into courses.

Models of stakeholder analysis provide insight into the perspectives and expectations of various engineering education stakeholders. This strategy involves engaging with students, faculty, industry professionals, and policymakers to learn their perspectives on the incorporation of employability skills. Gao et al. (2018) explored perceptions of employability skills in engineering education by employing stakeholder analysis. Their findings disclosed divergent perspectives among stakeholders and emphasized the need for collaboration and dialogue among stakeholders to ensure effective integration.

Curriculum Mapping Models: Curriculum mapping models provide a logical overview of the distribution of employability skills across the curriculum. This strategy entails mapping the desired employability skill outcomes outlined in the NEP 2020 to specific engineering courses or modules. Gray and Dolan (2018) used curriculum mapping to evaluate the incorporation of employability skills into engineering programs. Their research uncovered omissions and redundancies in the coverage of employability skills and offered suggestions for curriculum enhancement.

Thus, this review emphasizes the growing recognition of employability skills' significance in engineering education. The NEP 2020 is a guide for incorporating these skills into the curriculum. Previous research has utilized comparative analysis, content analysis, stakeholder analysis, and curriculum mapping models to evaluate the integration of employability skills. These models provide insightful information regarding the alignment of educational policies, curricula, and stakeholder perspectives. Based on these studies, the current research employs a comprehensive strategy that integrates these four models to provide a comprehensive analysis of the incorporation of employability skills into the NEP 2020 Engineering Syllabus.

3. Proposed design of an augmented analysis for analyzing the integration of employability skills in NEP 2020 Engineering Syllabus

In this section, we propose design of an augmented analysis for analyzing the integration of

employability skills in NEP 2020 Engineering Syllabus. This section is segregated into 4 parts, each of which covers an iterative aspect of the NEP Syllabus as follows,

- Comparative Analysis: This compares the NEP 2020 with the requirements of employability skills, assessing how well they align.
- Content Analysis: This involves a detailed examination of the curriculum to identify where employability skills are incorporated.
- Stakeholder Analysis: This includes the perspectives of various stakeholders such as students, faculty, industry professionals, and policymakers to understand the process of integration.
- Curriculum Mapping: This provides a systematic overview of how employability skills are distributed across the curriculum.

Based on this analysis, readers will be able to analyze the integration of employability skills in NEP 2020 Engineering Syllabus.

3.1. Comparative Analysis

India's National Education Policy (NEP) 2020 is a historic initiative with the goal of overhauling the nation's educational system. The development of students' skills to succeed in the workforce is a significant part of education. Employability skills, usually referred to as soft skills or transferable talents, are crucial characteristics that allow people to succeed in their employment. In order to determine how well they align, this section compares NEP 2020 standards with employability skill requirements. The NEP 2020 places special emphasis on a number of crucial aspects for pupils' overall development, including:

a. Holistic Education: NEP 2020 supports an inclusive and holistic educational system that emphasizes the growth of the mind, body, and spirit.

b. Skill Development: To encourage students' employability and entrepreneurialism, the policy strives to incorporate practical and vocational learning into the curriculum.

c. Critical Thinking and Creativity: NEP 2020 emphasizes the value of encouraging students' analytical, creative, and problem-solving abilities.

b. Digital Literacy: The policy acknowledges the value of integrating technology into the classroom and the necessity for digital literacy.

e. Multilingualism: To improve cognitive abilities and better equip pupils for a globalized environment, NEP 2020 encourages the use of many languages.

A set of interpersonal, communication, and problem-solving skills known as employability skills enables people to succeed in the workplace. Among these abilities are:

a. Communication: Possessing strong verbal and written communication abilities is essential for expressing thoughts, working together with coworkers, and developing business connections.

b. Teamwork: In the modern workplace, it is crucial to be able to collaborate with others, appreciate different points of view, and participate in group projects.

c. Problem-solving: People need to be able to think critically, recognize problems, and come up with workable solutions.

d. Adaptability: In today's dynamic employment market, the ability to adjust to changing conditions, learn new technology, and embrace innovation is essential.

a. Leadership: Leadership abilities include taking the initiative, inspiring others, and exhibiting good judgment.

f. Effective time management and organizing skills are essential for handling multiple tasks and meeting deadlines.

The Assessment of Alignment between NEP and Employability is tabulated in table 1 as follows,

Key Aspect	NEP 2020 Provision	Employability Skill Requirement	Alignment (1-5)
Holistic Education	Emphasizes cognitive, social, emotional growth	Fosters adaptable, empathetic individuals	4
Skill Development	Integrates vocational training and entrepreneurship	Enhances practical problem-solving abilities	5
Critical Thinking	Emphasizes fostering critical thinking skills	Develops analytical and creative thinking	5
Digital Literacy	Recognizes the importance of digital literacy	Improves tech proficiency and digital skills	5
Multilingualism	Encourages the use of multiple languages	Enhances cognitive abilities and versatility	4
Communication Skills	Not explicitly mentioned but emphasized indirectly	Improves verbal and written communication	3
Teamwork Skills	Not explicitly mentioned but encouraged indirectly	Develops collaboration and teamwork	3
Problem-solving Skills	Not explicitly mentioned but indirectly supported	Enhances critical thinking and creativity	4
Adaptability Skills	Not explicitly mentioned but indirectly supported	Fosters adaptability to change and innovation	4
Leadership Skills	Not explicitly mentioned but indirectly supported	Cultivates leadership and decision-making	3
Time Management Skills	Not explicitly mentioned but indirectly supported	Supports effective time management	3

Table 1. Assessment of Alignment

There is a 76% alignment between the NEP Syllabus and Employability skills, as indicated by the overall alignment score (out of 50), which is 38. Thus, there are various objectives that the National Education Policy (NEP) 2020 and the employability skill standards have in common [10, 11, 12]. Through its emphasis on comprehensive education, skill development, critical thinking, digital literacy, and multilingualism, NEP 2020 targets several facets of employable skills. However, the policy just hints at or doesn't directly encourage other employable skills, such as leadership, teamwork, communication, and time management. As a result, even though NEP 2020 and the standards for employability skills are reasonably aligned, placing more focus on particular soft skills could improve students' readiness for the changing job markets.

3.2. Content Analysis

For engineering graduates to compete in the tough labor market of today, they need more than just technical knowledge. A well-rounded engineer who can effectively communicate, collaborate, and adapt to changing work contexts has to possess employability skills,

commonly referred to as soft skills or transferrable talents. In this in-depth article, the engineering curriculum is examined to pinpoint key areas where employability skills can be introduced, and a table summarizing efficient implementation techniques is provided [13, 14, 15].

For engineers to clearly explain technical information and interact with coworkers, clients, and stakeholders, they must have effective communication skills. It is possible to include communication skills in the engineering curriculum by as follows,

Key Area of Incorporation	Implementation Strategies
Technical Presentations	Assign regular presentations on engineering topics
Report Writing	Include technical report writing in coursework
Team-based Projects	Encourage teamwork and effective communication
Communication Workshops	Organize workshops on effective communication skills

Table 2. Assessment of Communication Skills

Engineers often work in multidisciplinary teams, and the curriculum can foster teamwork and collaboration [16, 17, 19] through table as follows,

Key Area of Incorporation	Implementation Strategies
Group Projects	Assign group projects with diverse skill sets
Cross-disciplinary Courses	Integrate courses involving multiple engineering fields
Leadership Development	Offer leadership training and team-building workshops
Industry Internships	Encourage internships to experience teamwork in action

Table 3. Teamwork and Collaboration

Problem-solving and critical thinking skills are essential for engineers to address complex challenges [20]. Incorporating these skills can be achieved through a wide variety of parameters, each of which is discussed in table 4 as follows,

Key Area of Incorporation	Implementation Strategies
Real-world Case Studies	Include case studies to analyze engineering problems
Research-oriented Projects	Engage students in research-based problem-solving
Design Thinking Methodology	Introduce design thinking workshops and courses
Hackathons and Competitions	Organize innovation-driven competitions

Table 4. Problem-solving and Critical Thinking Process

Adaptability and innovation are critical as the engineering landscape evolves rapidly [21, 22, 23]. To foster these skills, the curriculum can include the following entities which are tabulated in table 5 as follows,

Key Area of Incorporation	Implementation Strategies
Industry Exposure	Arrange guest lectures by professionals from the field
Entrepreneurship Programs	Offer courses on innovation and entrepreneurship
Capstone Projects	Encourage open-ended projects to spur creative solutions
Technology Integration	Integrate emerging technologies into coursework

Table 5. Adaptability and Innovation

Engineering graduates often take on leadership roles and manage projects. Leadership and project management skills can be incorporated through the entities tabulated in table 6 as follows,

Key Area of Incorporation	Implementation Strategies
Project-based Learning	Assign projects with defined leadership roles
Industry-based Projects	Collaborate with industries for real project experience
Teamwork and Communication	Integrate communication and teamwork with project work
Professional Mentoring	Offer mentoring programs with industry professionals

Table 6. Leadership and Project Management

Meeting deadlines and managing multiple tasks efficiently are vital skills for engineers. The curriculum can promote these skills as per table 7 as follows,

Key Area of Incorporation	Implementation Strategies
Structured Assignments	Design coursework with clear timelines and milestones
Co-curricular Activities	Encourage participation in clubs and societies
Time Management Workshops	Organize workshops on time management and prioritization
Self-paced Learning	Offer flexible learning options to develop autonomy

Table 7. Time Management and Organizational Skills

Therefore, integrating employability skills into the engineering curriculum is crucial to producing graduates who are well-rounded and prepared for the workforce [24, 25]. Engineering colleges may help their students develop excellent communication, teamwork, problem-solving, adaptability, leadership, and time management skills by taking a deliberate and intentional approach. The development of employability skills can be accomplished through a mix of academic study, practical application, industry partnerships, and workshops. Engineering colleges may make sure that their graduates are equipped with the necessary abilities to succeed in their jobs and make meaningful contributions to society by ensuring that the curriculum is in line with the expectations of the job markets.

3.3. Stakeholder Analysis

Understanding the perspectives and interests of many stakeholders involved in the integration of employability skills in the engineering curriculum requires a technique known as stakeholder analysis. We can identify potential obstacles and chances for successful implementation by taking into account the perspectives of students, teachers, business professionals, and lawmakers.

The engineering curriculum's main benefactors are students, and successful integration depends on their input. Their viewpoints comprise:

• Interest in Practical Learning: Students might find it beneficial to include internships and real-world projects to improve employability skills.

• Time Restraints: Juggling technical education with the development of employability skills may cause issues with workload and time management.

• professional Readiness: Students would value training in employability skills that is in line with their professional goals and prepares them for the workforce.

• Industry Relevance: Students may want curricular revisions that match industry demands and lead to greater employment chances.

When it comes to developing the curriculum and conducting instruction, faculty members are crucial. Their viewpoints comprise:

• Availability of Resources: Faculty members may voice concerns about the training and resources needed to effectively teach employability skills.

• Resistance to Change: Some faculty members may be unwilling to adopt new teaching techniques.

• Curriculum Design: Faculty would benefit from clarification and direction on how to integrate employability skills without sacrificing technical material.

• Assessment Challenges: Different ways for evaluating employability abilities may be necessary, raising concerns about evaluation procedures.

Industry experts are key players that have insightful knowledge of the needs of the labor market. Their viewpoints comprise:

• Skill Gap Identification: Professionals in the industry can point out specific employability abilities that engineering graduates lack.

• Practical Training: To close the knowledge gap between academia and industry, they might stress the value of practical training and internships.

• Opportunities for collaboration: Industry alliances with educational institutions can promote real-world projects and guest lecturers.

• Programs that are specifically suited to the demands and trends of the sector may be appreciated by experts.

The direction of funding and policy initiatives for education is heavily influenced by policymakers. Their viewpoints comprise:

• National Development: Employability skill integration may be viewed by policymakers as a critical element for a skilled workforce and economic progress.

• Policy Alignment: Decision-makers will seek out initiatives that support bigger national goals and policies in the field of education.

• funds assistance: Programs for developing employability skills must have access to funds and assistance in order to be implemented successfully.

• Monitoring and Evaluation: Policymakers can look for ways to keep tabs on the integration process' efficacy and how it affects graduates' employability.

This analysis is summarized, and can be observed from table 8 as follows,

Stakeholder	Perspectives
Students	- Interest in practical learning
	- Time constraints

	- Career readiness
	- Relevance to industry
Faculty	- Resource availability
	- Resistance to change
	- Curriculum design
	- Assessment challenges
Industry Professionals	- Skill gap identification
	- Practical training
	- Collaboration opportunities
	- Customized programs
Policymakers	- National development
	- Policy alignment
	- Funding support
	- Monitoring and evaluation

Table 8. Summary of Stakeholder Analysis

Understanding the perspectives and expectations of various stakeholders involved in incorporating employability skills into the engineering curriculum can be done by conducting a stakeholder analysis. Institutions can create a comprehensive strategy that meets the needs of all stakeholders and ensures the successful integration of employability skills into the engineering education ecosystems by taking into account the worries and interests of students, faculty, industry professionals, and policymakers.

3.4. Curriculum Mapping

The distribution of employable skills across the engineering curriculum can be analyzed and visualized by educational institutions through the methodical process of curriculum mapping. It aids in locating holes, overlaps, and chances to improve the integration of soft skills necessary for graduates' success in the labor market. This thorough article offers a summary of how employability skills can be thoughtfully included into the engineering curriculum to produce engineers that are well-rounded and prepared for the workforce.

Finding the essential employability abilities that are essential for engineering graduates is the first step in curriculum mapping. These abilities could include, among others, time management, leadership, problem-solving, and teamwork. To ensure that the curriculum is relevant, it is crucial to integrate these abilities with the requirements and expectations of business professionals.

Clear and quantifiable learning outcomes for each employability skill should be established. These outcomes outline what is anticipated of students by the time their engineering education is over. Effective assessment and evaluation of students' progress in acquiring employable skills are made possible by learning outcomes.

The aim of specific courses across the engineering curriculum can include employability skills. The development of employability skills should be expressly stated in the course objectives by the instructors, along with a description of how students will learn and use these abilities during the course.

Map each employability skill to the courses where it can be developed and used as the next step. These consist of

• Technical report writing classes, technical presentations, and group projects can be mapped

to communication skills.

• Teamwork and Collaboration: Correlating to extracurricular activities, interdisciplinary classes, and group projects.

• Critical thinking and problem-solving: mapping to design thinking workshops, research-based projects, and engineering analysis courses.

• Adaptability and Innovation: Linking to entrepreneurship projects, internships in industry, and programs.

• Project management and leadership: Linking to project-based learning courses, business-related projects, and leadership development initiatives.

• Scheduling to organized assignments, extracurricular activities, and time management training. • Time Management and Organizational Skills.

The growth of employability skills throughout the engineering degree should be taken into account when structuring the curriculum. The complexity and depth of employability skill development should rise as students go from lower to upper levels. This makes sure that these skills are gradually improved as students approach graduation.

Creating proper evaluation techniques for employability skills is necessary for curricular mapping that works. Students' growth in these areas can be evaluated using rubrics, self-assessments, peer reviews, and project evaluations. To increase and strengthen the integration of employability skills, frequent feedback loops and continuous improvement initiatives are essential.

The incorporation of employable skills into the curriculum is largely the responsibility of the faculty. Institutions should give faculty members the proper instruction and assistance so that they can teach and evaluate employability skills in students. Workshops, seminars, and materials on pedagogical techniques for soft skill development can all be a part of this support.

A potent method for carefully distributing employable skills across the engineering curriculum is curriculum mapping. Institutions can design a complete and cogent strategy for developing soft skills by identifying key skills, specifying explicit learning outcomes, and mapping skills to courses. Engineering graduates with a well-integrated curriculum are not only technically proficient but also have the essential employability skills needed to succeed in their jobs and make valuable contributions to the workforce sets. Th statistical analysis for this process can be observed from table 9 as follows,

Employability Skills	NEP 2020 Provisions and Principles
Communication Skills	Emphasis on multidisciplinary education to enhance communication across domains.
	Promoting language proficiency and multilingualism for cognitive development.
	Encouraging creative and critical thinking to express ideas effectively.
Teamwork Skills	Integrated and holistic education to foster collaboration and teamwork.
	Encouraging project-based and group-based learning for collaborative skills.
	Interdisciplinary studies to promote teamwork across diverse subjects.
Problem-solving Skills	Focus on experiential learning and practical approaches for problem-solving.
	Encouraging research-oriented projects and innovation-driven curriculum.
	Promoting critical thinking to identify and resolve complex issues.
Adaptability Skills	Flexible and multidisciplinary curriculum to adapt to changing needs.
	Emphasis on continuous learning and upskilling for future employability.
	Encouraging exposure to emerging technologies and industry practices.

Leadership Skills	Developing leadership qualities through project-based and team-based learning.
	Promoting autonomy and initiative among students for decision-making.
	Encouraging leadership roles in student clubs and extracurricular activities.
Time Management Skills	Structured academic calendar and coursework to enhance time management.
	Encouraging self-paced learning to develop effective time management.
	Providing support for balancing academic and co-curricular commitments.

Table 9. Systematic Analysis for Curriculum Mapping Process

As a result, the NEP 2020 offers a thorough framework for changing the educational system, which includes engineering education. Although NEP 2020's principles and rules do not specifically address the distribution of employability skills, they can be strategically used to ingrain these abilities within the engineering curriculum. Institutions can successfully foster the employability skills needed for engineering graduates to excel in the constantly changing job market by emphasizing on holistic education, project-based learning, interdisciplinary studies, critical thinking, and exposure to real-world situations. The realization of NEP 2020's goal and the development of engineers who are prepared for the workforce and possess both technical know-how and crucial employability skills depend on each institution creating an augmented set of particular and thorough implementation plans.

4. Conclusion

Through a series of analyses, we have investigated several facets of employability skills integration in the engineering curriculum in this extensive work. The National Education Policy (NEP) 2020 and the standards for employability skills were compared in the Comparative Analysis, which showed a reasonable alignment between the two, with need for more focus on particular soft skills. The distribution of essential abilities across the engineering curriculum was examined as part of the content analysis to ensure that graduates receive a well-rounded education that will prepare them for the labor market.

The Stakeholder Analysis then illuminated many stakeholders' perspectives, highlighting the value of taking into account their points of view to promote successful integration, including those of students, teachers, business professionals, and policymakers. The Curriculum Mapping, which also emphasized the need for precise learning objectives, gradual skill development, and faculty assistance, presented a comprehensive overview of how employability skills might be strategically distributed across the NEP 2020 engineering curriculum.

These evaluations together emphasize the importance of employability skills in engineering education and the demand for their deliberate and comprehensive integration. A significant focus on employability skills is necessary to close the gap between academic learning and industrial requirements as the job market landscape continues to change quickly. Along with imparting technical information, the engineering program ought to foster students' capacity for clear communication, teamwork, problem-solving, flexibility, leadership, and good time management.

Educational institutions must use a multifaceted strategy to accomplish this goal. Employability skill integration should be a continual process with constant evaluation and improvement. To enable educators to teach and evaluate soft skills in a powerful way, faculty

development and support are essential. Internships and industry partnerships promote an innovative culture while exposing students to practical problems. In addition, financing and support from politicians are essential to the effective execution of projects to increase employable skills.

In summary, the process of incorporating employability skills into the engineering curriculum is a dynamic and team endeavor. Engineering institutions can develop a transformative educational experience by adhering to NEP 2020's guiding principles and taking into account the viewpoints of all stakeholders. This will result in graduates who are well-rounded, have the necessary technical skills for the workforce, and are prepared to start successful careers, contribute to society, and advance our country in the face of real-world challenges.

5. Future Scope

The integration of employability skills into the engineering curriculum has been thoroughly examined in this study. Its significance has been highlighted, and its comparison to pertinent policies, distribution of the content, stakeholder views, and implementation have all been examined. The current work sets a solid foundation, however there are a number of areas that deserve more investigation and development:

1. Conducting a longitudinal research to evaluate the long-term effects of employability skills integration on engineering graduates is part of the future aim of this paper. The efficiency of the program can be gleaned from following alumni's career trajectories and examining their achievement in the labor market. The integration process can be improved upon by using this data to identify problem areas.

2. Collaboration and Industry Feedback: It is critical to incorporate direct industry feedback into the curriculum design. To comprehend the shifting demands and expectations of industry professionals from engineering graduates, future study may incorporate close collaboration with these experts. Partnerships with businesses can result in co-designed curricula, internships, and guest lectures that are more in line with the needs of the labor market.

3. Comparative Studies: Researching institutions that successfully integrate employability skills and those that do not can help provide light on both obstacles and best practices. Comparative research can assist identify obstacles that need to be overcome and will shed light on aspects that lead to effective implementation.

4. Pedagogical Innovations: This paper's future focus will be on investigating cutting-edge pedagogical strategies to improve the development of employability skills. The curriculum can be further enhanced by incorporating cutting-edge teaching techniques, technology-based learning, and experiential learning opportunities.

5. Inclusivity and Diversity: Future studies should concentrate on ensuring that the integration of employability skills is inclusive and meets the varied requirements of students. The construction of a more fair and encouraging learning environment will be aided by an understanding of the effects of socioeconomic origins, gender, and cultural diversity on skill development.

6. Global Perspectives: Investigating international best practices in employability skill

integration can teach institutions in many nations very important lessons. An innovative approach to skill development that takes into account the needs of a worldwide workforce can be inspired by comparative examination of engineering curriculum from other nations.

7. Feedback Systems: Continuous progress will be made possible by establishing reliable feedback mechanisms inside engineering institutes. Regular surveys and focus groups with students, teachers, and business partners can help with iterative curricular improvements.

Lifelong learning programs: The demand for continual upskilling and reskilling of engineers can be addressed by extending the scope to encompass lifetime learning initiatives. Giving alumni and professionals the chance to learn new employability skills will help them grow professionally and be more adaptable.

This paper has an intriguing and hopeful future. The incorporation of employability skills into engineering curricula is a dynamic and developing process that calls for ongoing investigation, cooperation, and innovation. Institutions can develop a transformative educational experience for engineering graduates by investigating longitudinal impact, industry collaborations, global perspectives, and pedagogical innovations. The integration of employability skills holds the possibility of creating a workforce that is not only technically proficient but also has the adaptable abilities necessary to succeed in a labor market that is always changing for different scenarios. By embracing this long-term perspective, educational institutions may equip their students to become effective and ethical engineers who are prepared to meet the demands of the modern workplaces.

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