CRITERION 7- INSTITUTIONAL VALUES AND BEST PRACTICES

7.2 BEST PRACTICES

7.2.1 Describe two best practices successfully implemented by the Institution as per NAAC format provided in the Manual

BEST PRACTICE – I

TITLE OF THE PRACTICE:

Skill Development for Enhancing Employability and Industry Readiness

OBJECTIVE OF THE PRACTICE:

In a rapidly evolving society, engineers must continuously develop their skills to meet diverse needs. Mastery in engineering disciplines is foundational, yet professional skills like communication, project management, and ethical reasoning are equally vital. Personal and interpersonal skills, including teamwork, leadership, ethics, creative thinking, critical thinking and empathy which enables the engineers to navigate complex projects and collaborate effectively. This holistic skill set is essential for innovating solutions, driving technological progress, and addressing global challenges, ensuring engineers contribute significantly to both industry advancements and societal well-being. By implementing the skill development practice, our students will be able to

- Manage complex value-added engineering systems and increase innovation & productivity (Professional skills).
- Collaborate in a modern team-based environment and improve quality of work (Interpersonal skills).
- Grow into mature and thoughtful individuals and create a positive impact on society (Personal skills).

CONTEXT:

Challenging issues:

SRM TRP Engineering College, affiliated to Anna University, follows curriculum and regulations prescribed by the University. The Department Advisory Board (DAB) comprising subject experts, senior academicians, industry experts, Alumni, student representatives conduct curricular gap analysis after a new curriculum is released by the affiliated University. The challenging issues identified by the DAB are as follows:

1. The present curriculum has more weightage to theory courses to enhance technical knowledge but lacks weightage to professional, personal and interpersonal skills.

2. The practices involved in the practical courses are not contemporary and do not meet the industrial and societal needs. The rapid development of technology still widens the gap between the industry and institution.

3. Around 70 percent of the students admitted to the programs offered in the institution are from rural backgrounds. It is observed that these students lack communication skills and other necessary personal and interpersonal skills required for the engineering profession. Since the curriculum component focuses on technical knowledge, these students face challenges during employment.

THE PRACTICE

As per the guidelines of statutory bodies and recommendations in National Education Policy 2020, integration of essential Subjects, Skills, and Capacities is implemented in the teaching learning process of the institution. The practice followed for imparting essential skills are given below

Professional Skills

SRM TRP Engineering College consistently offers Upskilling training programs offered by Tamil Nadu state government through Naan Mudhalvan Upskilling Platform. Naan Mudhalvan stands for individual professional and leadership skills in Tamil. This platform aims to provide dynamic information about industry specific skill offerings. This will enable our students to get training in their chosen field of interest that will help them in achieving their career goals. Through this training our students will be able to ensure in getting jobs according to their skill sets. The training is mostly conducted by professionals from reputed industries.

The DAB recommends the industry ready skill sets to be offered to the students that addresses the gap identified in the curriculum. These skills are imparted to all the students through value added courses (VAC) during specific timings in weekdays and weekends. The cutting-edge skills included in the VAC offered by each discipline in the institution are as follows:

In the Mechanical Engineering Program, the students are offered VAC related to Non Destructive Testing (NDT), Hydraulic and Pneumatic Circuit Design and Analysis, AutoCAD for Design and Drafting, Computer Aided Manufacturing NX-CAM Basics, Solid Edge 2D Drafting.

In the Civil Engineering Program, the students are offered VAC related to Revit Architecture, Column design STADD Pro, Architecture in detail – Primavera, Creating Portfolio – Primavera, Multi storey analysis - STADD Pro.

In the Electronics and Communication Engineering Program, the students are offered VAC related to Machine Learning and Data Visualization using Python, Embedded C –Programming using Arduino & Tinker cad, RF Circuit Design using ADS, IoT in Industry 4.0.

In the Electrical and Electronics Engineering Program, the students are offered VAC related to Lab view, Electronic Design Automation (EDA), Programmable Logic Controller, Industry 4.0, NI Multisim.

In the Computer Science and Engineering Program, the students are offered VAC related to Cloud Essentials, R Programming, Android, Fundamentals of Machine Learning, Python for data science.

Personal and Interpersonal Skills

In addition to the technical skills listed above, personal and interpersonal skills required for industry ready professionals are also offered through regular training programs. These programs enhance the skills related to analytical reasoning, logical reasoning, non-verbal reasoning, verbal reasoning, communication & listening skills, motivational & personality enhancement, goal setting, team management, leadership quality & creativity, aptitude, interview skills and group discussion.

EVIDENCE OF SUCCESS:

The implementation of skill-based training has led to an 80% improvement in student performance in academics such as solving complex engineering problems, participation in design contests, conceptual understanding of core engineering topics, and the development of real-time projects. This practice is also reflected in the performance of the students in getting core placements, continuing education, and lifelong learning.

This skill-development practice enabled our students to win prizes in prestigious technical contests. Some sample evidences of success are as follows: 02 students won prizes in the Smart India Hackathon organized by the Ministry of Education, India; and 4 student projects received grant from the Tamil Nadu State Council for Science and Technology (TNSCST); and 10 students participated in international technical events such as the 'Electric Two-Wheeler Design Competition' organized by the Society of Automotive Engineers and the 'Luminous SIEP E-Bike Challenge' organized by the Imperial Society of Innovative Engineers.

Impact in placements

This skill-based training enabled the students to get 80% placement offers in core and allied industries. In the past five years, our students got placements in top level companies.

Impact in entrepreneurship

Two students from Electronics & Communication Engineering and Mechanical Engineering programs (2019-2023 and 2020-2024 Batch) have successfully become entrepreneurs with their innovative ideas as an outcome of skill integrated training offered in the institution.

PROBLEMS ENCOUNTERED AND RESOURCES REQUIRED:

The existing academic structure does not adapt as rapidly to the emerging technologies, market needs, and most importantly, student capabilities and aspirations. To solve this issue, faculty members are motivated to update and develop their technical competencies for the benefit of the students to be industry ready. Faculty development programs related to the industry expectations are less likely offered in the current scenario.

Currently, the programs are offered in silos which requires interdisciplinary interactions. It is planned to offer skill-based training that promotes interdisciplinary/ multidisciplinary/ trans-disciplinary aspects of solving real time industry / societal problems.

The 21st century learners use different styles of learning and have multiple intelligences. The existing skill-based training system needs to consider the learners preferences in choosing appropriate skill sets based on their interest and capabilities.

BEST PRACTICE – II

TITLE OF THE PRACTICE:

Enhancing Student Learning Through Global Engagement

OBJECTIVES OF THE PRACTICE:

SRM TRP Engineering College is committed to support our Learners and Faculty Members access best of the world through international collaborations. The major objectives of this best practice are:
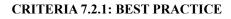
- Disseminating information among faculty members and students by promoting international exposure on higher education.
- Providing guidance and counselling for International exchange
- Organizing various foreign languages learning resources by helping students attain global insight.
- Inculcating Faculty-student development and resuming enhancement programmes and fostering foreign language cultures across the campus.
- Tapping global employment opportunities for the teaching learning community.
- Endorsing the brand name for college through international gathering and intellectual forums.
- Augmenting the global amity and solidarity among student fraternity.
- Aspiring to create collaborative learning through Memoranda of Understanding (MoU) and Memoranda of Agreement (MoA) by enriching various learning outcomes.

The purpose of this best practices is to expose our students to global trends in technological advancements, different cultures, places, and languages to enrich intercultural and academic experiences; encourage students to be more responsible and sensitive to other ethnic groups worldwide and makes it acceptable; develop global mindsets that improve flexibility, resilience, and cross-cultural communication, enhance global awareness, skills, and attitudes; enable to become global citizens.

THE CONTEXT:

In designing international exposure practices for students, several factors require attention:

1. **Rural Background Students:** Students from rural backgrounds lack access to resources and information about international education opportunities, necessitating targeted outreach and support to bridge this gap.

2. **Parents' Awareness:** Parents unfamiliar with the benefits of international education require educational initiatives to highlight the value and outcomes of such exposure, address concerns, and showcase potential pathways for their children.

3. **Financial Constraints:** Scholarships and virtual exchanges can mitigate the financial burden of international programs.

4. **Addressing Fear:** Pre-departure orientations and support systems help students and families navigate safety and cultural challenges.

5. **Institutional Constraints:** Institutions can offer alternatives like study tours or virtual classrooms for students unable to participate in semester abroad programs due to affiliation limitations.

Addressing these challenges ensures inclusive and beneficial international exposure opportunities for all students.

THE PRACTICE:

In the context of Indian higher education, the practice of providing international exposure to students is being redefined and expanded, particularly in light of the National Education Policy (NEP) 2020, which emphasizes internationalization. This approach is unique in several ways, addressing traditional educational frameworks with innovative solutions to incorporate global perspectives directly into the academic experience of Indian students.

1. **NEP 2020: Internationalization:** The policy encourages educational institutions to establish partnerships with foreign universities, enabling student and faculty exchanges which are provided in the institution.

2. **Immersion:** Students attend Immersion programs and go beyond academic learning, and receive first-hand experience with different cultures. This is facilitated through study abroad opportunities, internships with international companies, and cultural exchange programs, enriching the student's global outlook and intercultural communication skills provided regularly.

3. **Foreign Professor FDP, Courses, Seminar:** The engagement of foreign professors in Faculty Development Programs (FDP), specialized courses, and seminars introduces students to global academic standards and perspectives. This practice is unique and is followed to bring international expertise to campus, enhancing the educational experience without the need for students to travel abroad.

4. **MoU activities:** Memorandam of Understanding (MoU) with foreign universities outline specific activities such as joint research projects, exchange programs, and collaborative

academic events are encouraged. These activities are uniquely tailored to meet the objectives of both institutions, ensuring that students benefit from international academic standards and practices.

5. **Foreign Language Classes:** Offering foreign language classes as part of the curriculum or under specific MoUs with international institutions allows students to develop new language skills, which are essential for global communication. This practice is particularly unique and given to students as per the requirement, as it prepares students not just academically but also enhances the employability in the global market. German classes are regularly conducted. French and Japanese are also learnt according to choice.

Despite these innovative practices, there are constraints and limitations, such as regulatory hurdles for international collaborations, the need for substantial financial investments, and the challenge of aligning international curricula with Indian educational standards. Additionally, the logistical complexities of facilitating student exchanges and managing diverse student cohorts can pose significant operational challenges. However, these practices, rooted in the principles of NEP 2020, are setting a new standard for international exposure in Indian higher education, aiming to overcome these barriers and fully embrace the benefits of global interconnectedness.

EVIDENCE OF SUCCESS:

The evidence of success for International Exposure to Students in the context of Indian higher education can be observed through various indicators that reflect the effectiveness and impact of such initiatives:

1. **Increased Enrolment in Abroad MS Programs:** A notable of 20 students pursuing MS degrees abroad reflects both global academic interest and the effectiveness of international exposure initiatives. Monitoring annual growth in applications and acceptances provides a measurable gauge of success.

2. **German Language Proficiency and Opportunities in Germany:** Through German Language training offered to the interested students, one of our B.E Computer Science and Engineering Student of batch (2019-2023) has enrolled and pursing M.S - Brandenburg University of Technology, Germany. This Proficiency directly influences international career prospects, serving as a tangible measure of program effectiveness.

These results show that international exposure initiatives within the academic framework improved student global competencies, international collaborations, and global outlook. Growing interest in studying abroad and learning new languages for international

opportunities, are positive outcomes of such initiatives. These successes demonstrate how international exposure prepares students for global challenges and opportunities.

PROBLEMS ENCOUNTERED AND RESOURCES REQUIRED:

Implementing international exposure programs for students involves navigating several challenges, each demanding specific resources for effective resolution.

1. *Planning the Immersion Program is a time-consuming task.*

   Problems Encountered: Organizing immersion programs involves coordinating with international institutions, designing curriculum, and managing logistical arrangements, posing challenges in time, resources, and coordination.

   Resources Required: Dedicated staff, planning tools, and project management software are crucial. A clear timeline and a dedicated team can streamline logistics and coordination with partner institutions.

2. *Availability of Professors (Time Constraints):*

   Problems Encountered: Coordinating schedules between local and foreign professors for joint seminars, lectures, or courses is challenging due to time zone differences and conflicting academic calendars.

   Resources Required: Flexible scheduling and asynchronous teaching methods alleviate challenges. Investment in digital tools for seamless collaboration across time zones is vital.