KUMARAGURU college of technology
character is life

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Best Practices followed in the Department

1. **Title**

Fantastic – 40

2. **Objectives of the Practice**

To provide specialized pre-placement training for 3rd-year ECE students, ensuring they are well-prepared for campus placement drives and competitive hiring processes in core and IT industries.

3. **The Context**

The Fantastic – 40 initiative was introduced to address key challenges faced by ECE students in transitioning from academia to industry. Despite a robust curriculum, students often struggled with bridging the gap between theoretical knowledge and practical industry requirements. Soft skills such as communication, aptitude for problem-solving, and technical coding proficiency were identified as critical areas needing improvement. Additionally, the competitive nature of campus recruitment, coupled with evolving industry demands, necessitated a focused approach. The challenge lay in designing a program that catered to a diverse group of students with varying skill levels while aligning with industry standards and maintaining a balance between academic responsibilities and training sessions.

KUMARAGURU college of technology
character is life

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

1. **Title**

Technovation - 30

2. **Objectives of the Practice**

To mentor 2nd-year ECE students in developing innovative projects and publishing research papers in reputed journals or conferences, fostering technical skills, research aptitude, and early exposure to academic publication processes.

3. **The Context**

The Technovation - 30 program was initiated to address the lack of early exposure to research and project-based learning among 2nd-year students. While the curriculum focuses on theoretical foundations, students often lack hands-on experience in applying these concepts to solve real-world problems or contributing to scholarly literature.

Key challenges included:

- Lack of awareness among students about academic research and publication opportunities.
- Bridging the gap between theoretical coursework and practical, innovation-driven applications.
- Limited resources and mentorship for students at an early academic stage.
- The initiative aimed to build a strong foundation in research methodologies, foster creative thinking, and develop technical writing skills essential for academic and professional success.

KUMARAGURU college of technology
character is life

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

1. **Title**

Empower your Career

2. **Objectives of the Practice**

To provide placement awareness sessions for all 2nd-year ECE students, equipping them with knowledge about the recruitment process, career opportunities, and the skill sets required for success in campus placements and beyond.

3. **The Context**

In the rapidly evolving job market, placement readiness is a critical factor for undergraduate students. While most students are familiar with the concept of campus placements, they often lack clarity about industry expectations, preparation strategies, and the pathways to diverse career options. The following contextual factors were identified:

- Many 2nd-year students are unaware of the placement timeline and specific skills required for their desired roles, leading to insufficient preparation.
- The competitive nature of the hiring process necessitates early awareness of technical, aptitude, and interpersonal skills required by top recruiters.
- With the dynamic growth in both core electronics and interdisciplinary fields like AI, IoT, and IT, there is a need to familiarize students with these emerging career domains.

This initiative aims to address these challenges by fostering a strong foundation for career planning and placement preparation from an early stage.

KUMARAGURU college of technology
character is life

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

1. **Title**

Peer Learning

2. **Objectives of the Practice**

To facilitate learning and knowledge sharing among students of the Department Association (DA) by leveraging the expertise of senior students or peers, thereby fostering a collaborative learning environment and enhancing academic and technical skills.

3. **The Context**

Peer learning addresses the gap between formal classroom teaching and informal, experiential knowledge transfer among students. Recognizing that seniors and peers possess valuable insights from their academic and co-curricular experiences, this practice creates a platform for structured learning and mentoring.

Key contextual factors include:

- Students often find it easier to relate to peers and seniors when seeking clarification on academic concepts or practical applications.
- Senior students, having undergone similar challenges, can provide firsthand guidance on subjects, projects, and career planning.
- Encouraging collaborative learning helps in building interpersonal skills, teamwork, and confidence among DA members.

Challenges include creating a system that ensures structured learning while maintaining voluntary participation and equal opportunities for all members.

KUMARAGURU college of technology
character is life

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

1. **Title**

Thiran Arithal

2. **Objectives of the Practice**

To celebrate and recognize the exemplary achievements of ECE students in co-curricular and extra-curricular activities, thereby encouraging holistic development and inspiring peers to pursue excellence in diverse fields.

3. **The Context**

Academic achievements often overshadow accomplishments in co-curricular and extra-curricular domains. Recognizing that these activities play a crucial role in developing leadership, creativity, teamwork, and other essential life skills, Thiran Arithal was conceived to create a platform for acknowledging and motivating students who excel in these areas.

The key contextual features included:

- Highlighting the importance of co-curricular activities such as technical contests, paper presentations, hackathons, and robotics competitions, which enhance professional competence.
- Valuing extra-curricular achievements in sports, arts, public speaking, and social initiatives, which contribute to personal growth and emotional intelligence.
- Creating a culture of appreciation and motivation among students, encouraging them to balance academics with other pursuits.

Challenges included identifying a fair and comprehensive mechanism to evaluate and recognize diverse achievements and ensuring that recognition motivates, rather than creates undue pressure.

- *Apart from this, some more active practices are being followed in the Department Association like,*

Career Launch Pad: Placement, Higher studies and entrepreneurship sessions for 3rd year students.

Social Wing: An individual team for extra-curricular activities.

Thedal: Alumni interview session

DA Managers and Finance: To maintain DA budgets and reports of DA.

Magazine and documentation: An individual team for documentation of DA events.

Alumni & Higher Studies: An individual team for alumni connect and higher studies opportunities.

KUMARAGURU college of technology
character is life

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

1. **Title of the Practice**

Problem based learning

2. **Objectives of the Practice**

The objective of this Problem-Based Learning (PBL) activity in the course - *Signals and Systems* is to apply theoretical concepts to real-world scenarios. Students will analyze, model, and design systems that process signals, such as filters or communication systems, using both time and frequency domain techniques. They will apply tools like Fourier transforms, Z-transforms, and system properties (e.g., linearity, stability) to solve practical problems. Through collaborative work, students will design signal processing algorithms, simulate system behaviour, and evaluate system performance based on predefined criteria. The activity aims to develop problem-solving, computational, and communication skills in signal processing.

3. **The Context**

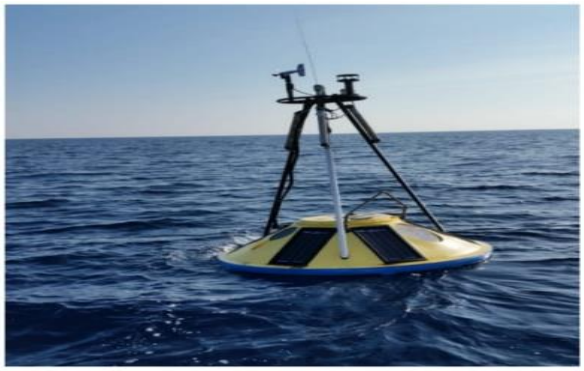
Designing and implementing Problem-Based Learning (PrBL) for a *Signals and Systems* course involves addressing several contextual challenges. First, the abstract nature of the subject matter—spanning time and frequency domain analysis, transforms, and system behaviors—requires careful consideration of how to bridge theory with practical, real-world applications. The complexity of mathematical tools like Fourier and Z-transforms can be intimidating for students, so the PrBL tasks must be designed to build foundational understanding before tackling more complex problems.

KUMARAGURU college of technology
character is life

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

CTFT Problem based learning

1. **An environmental scientist is studying ocean wave patterns using data from a buoy that records wave height over time. The recorded signal w(t) contains information about various wave frequencies. Use the Continuous Time Fourier Transform to analyze the frequency components of the wave signal and determine the dominant wave frequencies. Discuss how this analysis can help predict coastal erosion.**



2. **In a telecommunications company, engineers are struggling with maintaining reliable data transmission and clear signal quality due to increased noise and interference in their communication systems. Propose a method to address this issue, so that the engineers can decompose these complex signals into their individual frequency components. By analyzing the frequency spectrum, they can identify and filter out the noise and interference, thereby improving the clarity and reliability of the data transmission.**