Mahatma Education Society's

Pillai HOC College of Engineering and Technology, Rasayani

Best Practices (AY 2022-23)

Best Practice 1

Innovation Ambassador (IA) Training under IIC, PHCET

Goal:

- To foster the startup and innovation ecosystem on campus while establishing connections with regional and national ecosystem enablers.
- To mentor young minds in their quest of innovation and entrepreneurship by faculty mentors.
- To enhance the appropriate mentoring skills.
- To improve mentors' ability to mentor students in IPR, innovation, and entrepreneurship through a series of training programs and designate the mentor as Innovation Ambassador.
- To serve as an Innovation Ambassador and perform the role of mentor in the planning of various programs in the field of innovation and entrepreneurship and to educate faculty and students about these topics.

The Context:

Innovation Ambassador Training Program promotes innovation at the core of the New Education Policy. This program will help teachers transition from being textbook transmitters to becoming guides.

The teachers will first be trained for innovative learning, and then they can guide the children to build an innovative future for the country.

The Practice:

Through IIC, faculty is nominated to pursue Institute Ambassador training. After confirmation from MHRD IIC, faculty members complete the online training through individual login. Once training is completed, online assessment is carried out. Basic Level Training, Advanced Level Training and Up-skilling and Re-skilling Training are the levels for IA training. In Basic level training, Maximum of 10 IIC members can be nominated by IIC President/Convener; an auto-generated mail that contains login detail for IA portal will be received by the each nominated member.

IIC Members who have undergone Basic Level training, will be eligible for Advanced Level. Nomination is not required for the Advanced Level.

Up-skilling and Re-skilling Training: IIC members who have undergone Advanced Level Training are eligible for Up-skilling and Re-skilling Training. The beneficiaries of these training programs will join the network as "IIC-Innovation Ambassador" and perform the role of mentor in their respective IICs, will provide support to other IICs as resource person in organizing various programs related to innovation and startup and spread the message of innovation & start-up among the students and faculties.

Evidence of Success:

Upon receiving training, various faculties conducted activities for students and faculties based on program themes like Design thinking, IPR/ R&D and Innovation, Entrepreneurship, Innovation and Design thinking.

The various activities conducted helped students and faculties to gain expertise in the specific program themes and encouraged them to excel in this field.

Problems Encountered and Resources required:

Resources required include online access to training session and time commitment by individual faculty.

Best Practices 2:
Design, development and optimization of motorsport vehicle (Quad Bike/Go-Kart)

2. **Objectives of the Practice**

- Hands-on Engineering Experience: Design, build, and test vehicles in real-world scenarios.
- Skill Enhancement: Develop practical skills in design, CAD, manufacturing, and project management.

- Industry Exposure: Connect with professionals, opening doors to internships and jobs.
- Networking: Build valuable contacts among peers and industry experts.
- Leadership: Take on roles managing teams and projects, honing leadership abilities.
- Problem-Solving: Tackle complex engineering challenges, fostering innovative thinking.
- Resume Booster: Stand out with practical experience, commitment, and passion.
- Competitive Edge: Success in national competitions highlights expertise to employers.
- Personal Growth: Develop teamwork, time management, resilience, and more.

3. **The Context**

Starkers Motorsports is a student body of Pillai HOC College of Engineering and Technology, Rasayani established in the year 2017. The team participates in various national level competitions every year. The students from multi-discipline are recruited in the team each year on the basis of interview for various verticals in the team like design, manufacturing, management, marketing etc. PHCET, Rasayani has appointed faculty advisors to mentor the team in all their aspects for overall growth of the student. Funds for making the best practice into reality is one of the challenge faced for which the students approach various industries, NGO's and other establishments, apart from sponsorship from college. Identifying a dedicated working space with internet access and essential facilities, the management of PHCET, Rasayani tackled another challenge in the successful implementation of this practice.

4. **The Practice**

The entire practice can be divided into the following stages:

1. **Student Recruitment:** The process commences with the selection of students from diverse disciplines. Candidates are chosen based on their experience in various motorsports domains, such as design, manufacturing, marketing, and media. Various department heads are appointed, including roles like design head, accounts head, team captain, and vice-captain.
2. **Competition Registration:** Following a comprehensive assessment of different national-level competitions and budget considerations, the team registers for events and formulates a timeline and budget.
3. **Design and Analysis:** The vehicle is conceptualized and designed using software tools like Solidworks and Blender. Subsequently, the design undergoes analysis using tools such as Ansys, Comsol, and Matlab. The entire process operates on a predetermined schedule.

4. **Fabrication and Manufacturing:** With an optimized and thoroughly analyzed CAD model in place, the team initiates the fabrication phase, commencing with the chassis. This phase encompasses engine mounting, power transmission systems, suspensions and their mounts, braking systems, wire harnesses with electrical systems, and more.
5. **Testing:** The vehicle undergoes rigorous testing for 1,000 hours, during which various parameters such as steering effort, stability, and safety are scrutinized. Modifications to the vehicle are implemented as necessary.

Funding for this endeavor is acquired from a variety of sources, including student contributions, industry sponsorships, support from PHCET, and crowdfunding. Once the vehicle successfully completes testing, it is prepared for transportation to the competition venue.
In the academic year 2022-23, the team participated in Quad Torc season 8, organized by ISNEE (an FMSCI approved body) at Setu Institute and Technology, Madurai. PHCET generously sponsored a sum of Rs 1,50,000 to cover the traveling and accommodation expenses of the 24-student team and two faculty advisors.

Throughout the process a student grows in various aspects of engineering and practical life. Motorsports is a niche interest in India, making a motorsports student club unique. It caters to the passion for racing, automobiles, and the adrenaline rush that isn't commonly addressed in traditional student organizations. The club can provide students with practical, hands-on experience in racing and automotive engineering. This experiential learning is unique in the higher education landscape, allowing members to apply theoretical knowledge in real-world scenarios. Motorsports clubs can focus on skill development, including driving skills, mechanical knowledge, and teamwork. These skills are not typically a part of the regular curriculum but are highly valuable, especially in India's growing automobile industry. Motorsports events often attract professionals and enthusiasts. A student club can provide unparalleled networking opportunities, allowing members to connect with industry experts, sponsors, and like-minded individuals. Motorsports often push the boundaries of technology and engineering. Student clubs can engage in the development of race cars or innovative technologies, contributing to the industry and showcasing the talent within Indian higher education. Motorsports are a global phenomenon. Student clubs can promote international exposure and collaboration, offering a broader perspective on racing and automotive culture worldwide.

5. **Evidence of Success**

The results of competition held by ISNEE in Quad Torc season 8 in AY 22-23 are as follows:

- All India Rank -2nd
- Best Endurance and Fuel Economy

- Best Acceleration
- Best Traction
- Best Suspension
- Kill the Hill Trophy
- Best Female Candidate Award
- Best Driver Award
- Best Assembly & Disassembly Award

The results are also published by the organizers on the following website:
Link: https://isnee.in/qt/Content/Seasons-8.aspx

Apart from competition results, the students aspire for higher education in similar interest either in India or abroad. The students also get higher chance of recruited in companies due to higher exposure and experience. The result showcases the alignment of best practice with the objectives.

6. **Problems Encountered and Resources Required**

The club was formed in the year 2017, but lacked dedicated space to work. Earlier associated with Research lab during its pilot days, the club has been assigned dedicated pit with internet and other facilities.

Motorsports proved to be an expensive endeavour. Sourcing funds for vehicle development, equipment, and competition participation was a significant challenge, especially for student-run clubs or those with limited resources. Designing, building, and maintaining race vehicles required a high level of technical expertise. Finding members or advisors with the necessary skills was challenging, and training new members took time. Securing specialized components and parts for race vehicles was challenging, as they were not always readily available or affordable. This often led to delays and increased costs. Attracting and retaining members who were dedicated to the club's goals proved to be difficult, as motorsports was a niche interest. Keeping members engaged and committed was a continuous challenge.