BEST PRACTICES

Title of the Practice: Using community based projects as a tool to develop students analytical skills, creativity and innovation and enhance student learning.

Objectives of the Practice:

Don Bosco organizations across the globe have been training young students for life and livelihood. Therefore the VISION statement of DBIT mentions about transformation of students into SOCIALLY CONSCIOUS CITIZENS who promote sustainable technologies. To realize this vision the institute has devised a strategy to formally engage students in activities that contribute to this vision.

1. To sensitize the students to the needs of the community.
2. To engage deeply with the community to understand their culture and practices and help identify their needs and their challenges.
3. To learn the principles of innovative problem solving.
4. To deploy latest technology for benefit of the community.

The Context:

It is often mentioned that a dismal percentage of the students graduating from engineering colleges are employable. Apart from poor technical skills the students also have poor communication and inter-personal skills. The curriculum continues to encourage rote learning and therefore students are unable to deal with real life problems. The curriculum doesn't offer much scope for critical and innovative thinking and developing problem solving skills. One of the best techniques to teach these skills is to encourage students to work in the field and provide them opportunities to learn employment skills and life skills. Community based projects are a great way to expose students to real-life problems and help them develop important skills

The Practice:

During the first year of engineering students are exposed to community problems through value added courses. The SIE (Sustainable Innovations for the Environment) club, the students are introduced to various concepts of sustainability.

In the second year of engineering students are taken on a field visit to neighbouring communities as well as tribal communities on the outskirts of Mumbai. The students live with the community members and observe their lives closely and understand their hardships. Students identify problems that they could solve using their analytical and technical skills. These problems are converted into projects which the students work on from their second or third year onwards. They visit the communities frequently to interact with the members and gather necessary data. They build prototypes and test it . After successful testing the actual product is designed and delivered. In the process the students learn several skills like interacting with customers and gathering customer needs, creative thinking, product design and development, prototype testing and so on. The product

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is also displayed during INNOVEX, the annual project exhibition cum competition.

Evidence of success:

The students have designed several innovative projects for the community like

- Innovative water carrying trolley for tribal women of Jawhar district
- Solar cooker for tribals of Jawhar district
- Improved cooking chulhas for the tribal people
- Instrument to clean shallow and narrow drains in Mumbai slums
- Mobile based app to improve food habits of tribal women
- Sensor based monitoring systems for crops in tribal areas

The students have received a lot of appreciation for the projects. They have submitted papers to several conferences and journals and have won awards. Some of the products are soon to be patented.

The community is happy with the interest shown by the students in understanding their problems and willing extend any help. This has help build close relationship between the institute and the communities.

Problems encountered

Most tribal communities are wary of city folks and don't share information easily. It takes a lot of time to gain their confidence and gather relevant data. Likewise the urban communities located in slums are also not very forthcoming initially.

Tribal communities are far from the city and therefore the interactions are fewer. Carrying prototypes back and forth is also a challenge. There is no funding available for such projects so the institute has to fund it .

Resources Required

Adequate manpower is required for surveys, sensitizing the community, monitoring the deployment and capturing the impact. Resources are required for travel and stay with the communities. Students need to spend some time away from their academic classes. Occasionally experts are engaged for research and consultation.

Multiple prototypes are to be developed and tested which adds to the cost of the project. Therefore funds need to be allotted for each projects to cover the travel, stay, expert remuneration, material and manufacturing cost.

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Title of the practice: Awareness of Innovation and Entrepreneurship amongst students and Faculty members of DBIT

Objectives of the practice:

To realize this vision the institute has devised a strategy to formally engage students in activities of innovation and entrepreneurship.

1. To create an entrepreneurial eco-system in the Institute.
2. To inculcate spirit of entrepreneurship amongst students and faculty
3. To provide necessary training and awareness to take up entrepreneurial activities.
4. To interact with successful entrepreneurs to motivate students and faculty
5. To mentor students and faculty to convert ideas into marketable products

The Context:

This is the initiative to promote the zeal to take up entrepreneurship as a career among the students and faculty at DBIT. Startup is a buzz word in India today and many hackathons are being conducted across the country. Due to the current pandemic, Hon. PM Shri Narendra Modi has given a call for Atma-Nirbhar Bharat, hence we, as a nation, are on verge of resuming our original entrepreneurial mindset. Also, entrepreneurship and startup are at the core of New Education Policy 2020. At DBIT, we have adopted the National Innovation Startup Policy (NISP) by the Ministry of Education as it is and have been conducting pre-incubation activities for quite a time now and our flagship programme in this genre is Make-A-Thon. We have successfully conducted the two editions of Make-A-Thon with great pomp and grandeur.

The Practice:

1. Students are engaged in mini-projects which may end up in starting up.
2. In the second year of engineering students are formally taught innovation techniques through InnovatioNext software and trained to identify problems and to devise innovative and creative solutions. This course is not a part of the formal curriculum laid down by the university
3. In the third year of engineering students are motivated and trained to participate in competitions like Chhatra Vishwakarma, Tata Crucible, Smart India Hackathon.
4. Experts are engaged to deliver talks to students on innovation, startup and entrepreneurship.
5. Field visits are organized to nearby incubation centres.
6. We have launched successfully conducted our flagship programme in startup and entrepreneurship, Make-A-Thon.

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7. We have conducted Any-Body-Can-Do-Entrepreneurship (ABCDE) training programme for students and faculty
8. Our institute is on mission of training all our faculty members in Startup and Entrepreneurship and have stated faculty entrepreneurship training programme.
9. Regular participation in Atal Ranking of Institutions on Innovation Achievements (ARIIA) since its inception.
10. The final year projects are exhibited during INNOVEX, the annual project competition, and the students are encouraged to convert their ideas into business proposals and start-ups.
11. An in house MIS is being developed as a product which is used to capture staff and student attendance and many other features required in support of Academic
12. An in-house innovation competition," Solutions for Smart City" was conducted for the final year students

Evidence of success:

1. Students winning competitions like Smart India Hackathon which demonstrates their ability to ideate, think out of the box.
2. Our students have been consistently winning prizes in SIH since 2017.
3. Successfully conducted two editions of Make-A-Thon.
4. Presence of very active E- Cell with plethora of innovation, startup and entrepreneurship programmes round the academic year.
5. Student internship in Startups.
6. E-cell newsletter, "Teaching Marco".
7. Creation of position of Dean for Innovation and Entrepreneurship
8. Adoption of DBIT Innovation and Startup policy drafted on the basis of NISP
9. Constitution of NISP Implementation Team
10. Constitution of Institution's Innovation Council (IIC) on the guidelines of MIC (Ministry of Educations' Innovation Cell)
11. The daily login and logout details captured by the MIS is one of the evidence.

Problems encountered

1. Absence of budgetary provisions for Innovation and Entrepreneurship (I&E) activities
2. Students consider hackathons as competitions only and participate with a goal of winning a prize or certificate and not to startup.
3. Students tend to lose interest in (I&E) once out of campus.
4. Difficulties in seeking Government Grants.

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5. Absence of I&E infrastructure on campus
6. Providing Industry Mentors during SIH and taking care of the expenses of Industry experts during the SIH.
7. Customization required when the system of the college changes and new additions are made to syllabus structure: *MIS changes due to Mumbai university criteria*

Resources required

1. Budgetary provisions for Innovation and Entrepreneurship
2. On campus Incubation Centre
3. Availability of mentors to groom the students and take forward their start-up ideas

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