



Don Bosco Institute of Technology

[ENGINEERING COLLEGE]

(Approved by AICTE & Affiliated to University of Mumbai)

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 the latest technology for the 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 with 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:

Embarking on the journey of their second year in engineering, students engaged in the development of impactful mini-projects. The initiation phase involved an in-depth literature survey, delving into existing solutions and understanding the nuances of addiction, healthcare records, digital crime, and driver drowsiness. Following this, a comprehensive feasibility analysis was undertaken, assessing



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the viability and potential impact of each project on social and community welfare. Prototyping became a pivotal phase, where students translated their theoretical understanding into tangible models, ensuring the practicality and efficiency of their proposed solutions.

Project implementation marked a hands-on stage, where coding, hardware integration, and system development took precedence. Rigorous testing followed, ensuring the reliability, security, and efficacy of each system. The culmination of these phases reflects not only technical prowess but also a commitment to social responsibility, as these projects stand as tangible contributions to community welfare and societal well-being.

Evidence of success:

The initiative of DBIT to bring about awareness and interest among school students about STEM courses in the form of CrEAST was appreciated by the school managements. The students have designed several innovative projects for the community. At least 20%- 25% of the final year projects are related to solving community problems by deploying the latest technology. The students have received a lot of appreciation for the projects. They have submitted papers to several conferences and journals. 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 is willing to extend any help. This has helped build a close relationship between the institute and the communities.

Problems Encountered

Engaging with the community and winning over their trust is vital to working with them. Community projects have a long gestation period and cannot be completed as part of a year-long academic project.

The implementation of these innovative projects posed its share of challenges, typical of students navigating the early stages of their engineering journey. Limited technical expertise emerged as a hurdle, with students grappling with the complexities of coding, hardware integration, and system development, given their nascent exposure to the engineering field. Additionally, the demanding nature of the projects underscored the constraint of time, particularly during the literature survey and testing phases. Balancing the need for an in-depth exploration of existing solutions with the pressures of academic schedules proved to be a delicate task. The experience not only honed their



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technical skills but also instilled a valuable lesson in navigating real-world constraints and complexities.

Resources Required

The successful implementation of these diverse engineering projects requires a strategic blend of resources. 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 may need to spend some time away from their academic classes. Remuneration to experts to judge competitions, deliver expert talks, cost of field visits. Common to all projects are efficient time management tools, collaboration platforms, and project management software to navigate the complexities of literature surveys, prototyping, and testing. Additionally, students benefit from general learning resources such as online courses and engineering forums to enhance their technical prowess and problem-solving skills.



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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. TE and BE 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.



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6. Our institute is on mission of training all our faculty members in Startup and Entrepreneurship.
7. Regular participation in Atal Ranking of Institutions on Innovation Achievements (ARIIA), since its inception, which is renamed recently as nirf-Innovation.
8. 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.
9. 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

Evidence of success:

1. DBIT is placed in "Brand Promising" in ARIIA ranking 2022.
2. Students winning competitions like Smart India Hackathon which demonstrates their ability to ideate, think out of the box.
3. Our students have been consistently winning prizes in SIH since 2017.
4. Successfully conducted two editions of Make-A-Thon.
5. Presence of very active E- Cell with plethora of innovation, startup and entrepreneurship programmes round the academic year.
6. Adoption of DBIT Innovation and Startup policy drafted on the basis of NISP
7. Constitution of NISP Implementation Team
8. Constitution of Institution's Innovation Council (IIC) on the guidelines of MIC (Ministry of Educations' Innovation Cell)
9. In the very first year of its constitution, DBIT IIC secured Three-Star rating
10. Around 39 events/seminars/workshops/competitions, etc have been conducted to promote innovation, startup and entrepreneurship in this AY.
11. The daily login and logout details captured by the MIS is one of the evidence.
12. Two faculty members are certified Innovation Ambassador.

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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