7.2 BEST PRACTICES

BEST PRACTICE NO – 1

1. Title of the Practice

'SOCIETAL NEEDS FOCUSED RESEARCH INITIATIVES'

2. Objectives of the Practice

A vital aspect of PRIST institutional vision is 'to be recognized for its efforts in promoting research for community service'. One of the missions of PRIST envisaged is to emerge as a centre of academic excellence where high quality research and high-quality teaching are mutually sustaining.

Objectives:

- Research groups to keep making conscious attempts at identifying the needs of the society in its neighborhood.
- Research scholars would be constantly encouraged to select for their investigations 'research problems' which can bring solutions for human needs.

3. The Context

Faculty researchers had to be sensitized towards encouraging their scholars in carrying out research in topics closely associated with issues in the neighborhood. Such an approach motivated the scholars to carry out real-time surveys of issues that were prevalent among the local populace. Needs assessments were carried out and research priorities were, thus, drawn.

Systematic studies carried out often led to innovation as evidenced by the good number of patents filed.

4. The Practice

While most of the research works in Indian academic institutions happen to be theory-oriented and would end on the shelves as mere 'thesis reports', the uniqueness of this best practice at PRIST envisaged real-time implementation of systematically found solutions for problems faced by the community, through research efforts by the PRIST faculty and scholars. Concerted efforts were organized in gauging opinions on various live issues. Closer engagement with the local community where the issues were spotted added credibility to the research surveys of the scholars guided by the faculty Supervisors. The research teams interacting with the community represented by the common men were trained to monitor the issues under study, learn the intricacies, analyze situations, plan and design possible solutions. Overall, the major research issues nucleated around the following domains.

Education and Training:

i. Exploration of effectiveness of various teaching learning tools for better understanding retentivity among the students (Multimedia/E-Learning, Concept Mapping, Small Focused Group and Usage of Other Web Based Tools)

ii. Effect of organizational set-up, parental involvement, training of specific employability skills as part of curriculum.

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➢ https://pristuniv-my.sharepoint.com/:b:/g/personal/criteria7_prist_ac_in/EfcoI3UGisBGppIi1BxDPngBuFrd5MV6uNgU20k8HSXiag?e=SzxQah

> https://pristuniv-my.sharepoint.com/:b:/g/personal/criteria7_prist_ac_in/ESlzh4bxP5BNn3Dsebbr6B0BodAFxAzNlmi9ArASojb0gw?e=UZkuPw

Healthcare and Agriculture:

i. Development of polyherbal formulations for various common diseases (Diabetes, Tuberculosis, Parkinson's syndrome, Cancer, Dermatological and gastrointestinal

disorders, various wounds and so forth)

ii. Development of formulations for enhancement of germination, growth, disease control and productivity of various crops (Tulsi, Paddy etc.,)

iii. Disease control and yield maximization in fisheries, with special reference to local fishermen community

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Computational analytics:

i. Development of expert systems using data analytics and IOT for resource management (especially land and agricultural resources)

ii. Development of specific algorithms in dealing with emerging issues such as image compression, text detection and NLP, energy conservation and so forth.

Resource Management:

i. Exploring and addressing the issues plaguing commercial and marketing sectors (namely microinsurance, green procurement, CSR, investment portfolio for SHG, employee attritions, customer relationship, share market investment perceptions, healthcare schemes, HR practices, Optimized usage of demolished waste, Supply chain management and overall organizational performances)

ii. Case studies on perception of the above-mentioned sectors (for selected zones in Tamilnadu, Maharashtra and Kerala).

Environment:

i. Development of waste-based construction materials and their performance characterizations (viz. strength, corrosion, durability etc.)

ii. Geospatial modeling of SWM issues (optimized collection points, route optimization, site delineation for landfill and specific waste management strategies)

iii. Management of specific toxic industrial effluents using integrated adsorption and biological degradation

iv. Water quality surveillance, modeling and low-cost indigenous treatment strategies.

5. Evidence of Success

When the best practice - 'Societal needs focused research initiatives' - suggestion was made to the faculty members and students, in general, and to the PRIST research groups and the scholars, in particular, it was received in all earnestness. PRIST found the emergence of specific 'research groups' in domains as described below, when the faculty researchers fanned out into the neighboring communities and began investigations.

Water Quality

Water Quality monitoring, modeling and providing remedial approach for mass bathing festival at Mahamaham tank (also called Southern Kumbhamela)

Development of low-cost agro-based treatment of textile waste water .

- ➢ **Demineralization.pdf**
- ➢ **Desalinationa and Water treatment.pdf**
- ➢ **Geo-hydro spatial modelling.pdf**

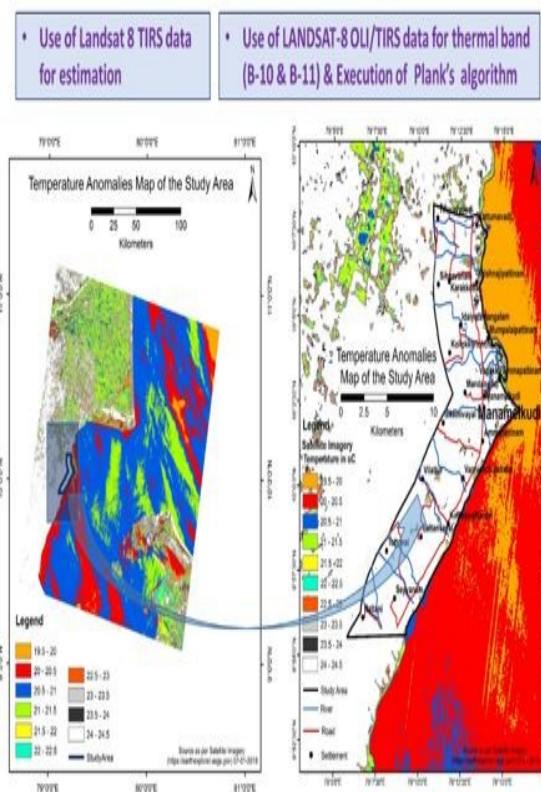

Fig-1 : Offshore thermal/salinity anomaly assessment

Fig-2: Zones of Temperature anomalies

Salinity anamaly assessment

Mahamaham tank - water quality   **SUTRAM activities**

Solid Waste   Management

➤   Optimized collection points, routing and landfill site delineation at Puducherry, Kumbakonam and Perambalur.

➤   Development of landfill leachate treatment strategies using constructed wetland Assistance to Corporates.

➤   Carrying out focused investigations for exploring the KPI in relation to various   divisions (especially, HR and CSR)

➤   Evaluating the effectiveness of specific developmental policies and diagnosing the nonconformance and bottlenecks in the logistics and implementation across the entire supply chain.

➤   Improvisation of the Teaching, Learning approach.

➤   Unveiling (hidden) confounding mediators in emerging pedagogic approaches and recommendation of suitable domain specific interventions.

➤   Development of robust scales and metrices for assessment of various performance dimensions and constructs

➤   Proctoring community healthcare and overall, well being.

➢ Carrying out high-end scientific investigations on remedial effectiveness of poly herbal compounds on both chronic and acute ailments Orchestrating close-cycled green strategies in improving the sustainability and yield (both agriculture and animal husbandry)

➢ **GIS in SW management.pdf**
➢ **GIS in SW management-1.pdf**
➢ **Kundan Kumar – TTM.pdf**
➢ **Kundan Kumar(Mech).pdf**
➢ **vidhyasekar.B(Mgt).pdf**

6. Problems Encountered and Resources Required Hesitation among the public, especially those in the neighborhood society, in freely sharing with the research scholars, the issues. This required the scholars guided by the faculty supervisors to establish a deeper communication with the locale public encouraging them to come out with their problems for which the researchers can indeed identify solutions.

BEST PRACTICES – NO.2

1. Title of the Practice

Strategy for **'structured industry - connect'** by the faculty to enhance industry collaboration by the university

2. Objectives of the Practice

One of the missions of PRIST DU is to adopt a distinct approach that promotes inquiry, innovation and collaboration. In order to accomplish such mission faculty members are provided with a platform to enrich their practice of industry collaboration.

Objectives:

• To encourage faculty in identifying industrial establishments with which they can build a meaningful collaboration

• To broaden the scope for student-internship and field work through industry-connect established by the faculty

• To bring in a greater number of industries into the ambit of 'industry collaboration' aimed at by the university as each faculty member is encouraged to connect with minimum of two industries/organizations in their respective domain.

3. The Context

The academia, in general, finds a hesitation on the part of industry when a 'collaboration' attempt is suggested. Especially, requests for student-visits, internships are rarely welcome by the industries which need to be almost coerced into giving such opportunities for the students. However, PRIST recognized the need to invent and adopt suitable means to locate opportunities for the benefit of students by way of meaningful industry – collaboration.

It is a humungous task for the administration to go about contacting industries for the purpose of obtaining student-internships and organizing industry visits and field work.

Moreover, faculty have also understood the need for industry exposure if they have to pursue meaningful research activities. Solving problems for the industries contribute greatly to their research efforts. Also, industry connect goes a long way in enriching their classroom teaching, too, as it helps them relate various topics in the courses taught to the real-time industry/market scenario.

The aforesaid needs have driven PRIST faculty towards adopting the said 'best practice'.

4. The Practice

Imparting effective and meaningful education to the students in a classroom setup demands the faculty to be well-versed with the trends in the industry/market/real-world trends. Especially, the need for faculty teaching technology-oriented courses being aware of the industry trend cannot be overemphasized. This requires them not only to be aware of and update themselves with the recent developments in the industry/market, but also interact/collaborate with the industries. Faculty with industry exposure, either with a background of working experience in the industry or regular visits to and interaction with factories/manufacturing organizations/marketing Firmscan motivate students while imparting theory/lab instructions in the campus. Hence, the need arises for a meaningful industry collaboration by the faculty of the institution.

In addition, students being able to avail of opportunities for field visits/industry internships is of vital importance as it would help them fare better in the placement drives and garnering lucrative jobs after graduation. Students who have undergone industry-internships are found to be gathering wider knowledge in their respective domains.

Though, the aforesaid arguments are well understood, in general, by the academia and an imminent need for industry connect is recognized by the university, little cooperation is forthcoming from the industrial world. Not many an industry opens its doors for student/faculty related training in its premises. Therefore, the university is faced with lots of constraints whiletrying to approach industries for the above-mentioned training needs for the students or exposure for the faculty.

Even consistent efforts by administrators yield only minimal results with only a handful of industries willing to accept students/faculty for even field visits and internships for sizeable periods.

The above scenario spurred PRIST DU to introduce an innovative practice. Faculty members were motivated to approach industries after identifying from their (industries') websites, possible domains of interaction where the faculty can support the cause of the industry by suggesting implementation of better practices and solutions for technical problems. Encouraged by positive responses from the industries, faculty were able to walk into a good number of industries. It was, then, mandated that every faculty member try building rapport with minimum of two industries/Firms.

The exercise would involve inviting personnel from the industry for interactions with faculty/students faculty visiting industries to identify 'problems' / discuss solutions, scholars being able to pick up topics for research, obtaining for students'internship' offers, arranging field visits etc.

Junior members of the faculty had difficulties in approaching industries.

- ➢ School of Eng& Technology – 57 industries
- ➢ School of Commerce & Management – 24 industries
- ➢ School of Agriculture – 5 industries
- ➢ School of Education – 24 industries

6. Problems Encountered and Resources Required

Though it was mandated that every faculty member identify a minimum of two industries, it was observed that juniors faced challenges in doing so. They had to depend on the support from their senior colleagues. Some industries identified the faculty were reluctant to permit internships for students, however, allowing only 'visits'. There were issues faced while the possible solutions for technical problems faced by the industries were discussed - faculty were prevented from gaining access to the intricacies of the infrastructure available with the industries. Such constraints caused hardships when industry oriented live-issues were taken up research scholars for investigation.

5. Evidence of Success

When each faculty member was motivated to interact and establish contacts with minimum of two industries, the university could build links with a sizeable number of industries. The number of industries with which the university departments were able to connect grew substantially. The personal rapport maintained by the faculty members with the industries made it easier for them to freely discuss technical problems faced by the industries in order to identify suitable solutions.

Senior Professors guiding research scholars were able to identify research topics for investigation. Listed below are the number of industry connects that some of the university departments were able to accomplish:

➢ School of Arts & Science – 32 industries

2018 – 19

➢ https://pristuniv-my.sharepoint.com/:b:/g/personal/criteria7_prist_ac_in/EbQoTSv7CwpMprDTXeu_xjkBzFjyQmtHWq2pWJGiKmRe8w?e=89QKgG

2019 – 20

➢ https://pristuniv-my.sharepoint.com/:b:/g/personal/criteria7_prist_ac_in/Ef7g5T2LUl5MgUFqeyPQiG4BXnWRCpaEA2YjzsC65uNFNQ?e=glGmzD

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➢ https://pristuniv-my.sharepoint.com/:b:/g/personal/criteria7_prist_ac_in/EQ1JBZ4AM9JJvyY-7dgA9cIBqBRLfM4YeHv7PxSZZvezBg?e=nTPfzw

Industrial Training

➢ https://pristuniv-my.sharepoint.com/:b:/g/personal/criteria7_prist_ac_in/EZnsHc5hOVpPgzqPZ4rX_-oB56g1hEXA5kjiHop3RJGAaQ?e=92EIva

PONNAIYAH RAMAJAYAM INSTITUTE OF SCIENCE & TECHNOLOGY (PRIST)
Declared as DEEMED-TO-BE-UNIVERSITY
U/s 3 of UGC Act, 1956

SUN Engineering – Industrial Visit

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Evershine – NDT

Inauguration of NDT workshop by Program coordinator, HoD, Dean and resource Person

Two days Workshop on "Modern NDT Techniques"

Department : Mechanical Engineering   No of students attended : 62
Date: 24.07.2018 & 25.07.2018   No of Staff attended   : 15

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Industry institution interaction cell and Department of Mechanical Engineering is jointly organize Two days workshop on Modern NDT Techniques on 24 & 25.07.2018 at CRD seminar hall. The woksshop is collaborate with Evershine institute of testing and training,trichy.Totaly 62 students and 5 Teaching faculty and 10 non teaching staff are attended in this workshop.

Resource Person : Er.D.Shankar Ganesh

          Level –II, NDT engineering

          Evershine institute of testing and training

          Trichy -620 018

 Topics covered in NDT workshop as follows

➢ Ultrasonic Inspection
➢ Dye penetrant Inspection
➢ Radiography Film Demonstration
➢ Magnetic particle Inspection
➢ Liquid Penetrant Inspection
➢ Visual Testing
➢ Radiographic film interpretation

NDT Techniques presentation by Resource person Er.D,Shankar Ganesh

➢ **https://pristuniv-my.sharepoint.com/:b:/g/personal/criteria7_prist_ac_in/EQPfOHCdIltCvVNfq6T1PbQB9ouw9cMwjs0yIJh5fhJPzw?e=dDaJD1**