Department of Physics
Best Practices Report (2020-2025)
2020-21

Title of the Practice

Bridge Course

Objectives of the Practice

1. To provide adequate foundation in core subject and to identify slow learners
2. To help slow learners with different learning ability and bring them back into main stream classes.
3. To bind a bridging gap between school and college education.

The Context

Attendance sheet is maintained by the faculty members which includes students attendance and topic covered in the class.

The Practice

Students are selected for remedial classes based on the test conducted during the bridge course.

Evidence of Success

Performance of students has improved and good results were obtained.

Problems Encountered and Resources Required

Lack of regular attendance of students due to covid pandemic.

2021-2022

BRIDGE COURSE

Objective:

The objective of this course is

- To impart knowledge and provide adequate foundation in core subject.
- To identify Slow learners, medium learners and advanced learners
- To overcome the barrier between subjects learned at +2 level and college level.
- To bridge the gap between Slow learners and medium learners

The context

Each student has different learning capacity. In order to enhance the learning ability of slow learners, bridge courses are planned and conducted every year in the department of

Physics. This course will definitely reduce the drop-outs and motivate the students to continue their studies. As Learning is a life-long endeavor, Learning can start at any phase of life. So the Department of Physics enables and provokes the student's thirst for learning. slow learners are identified and a separate session is provided. The session is planned to be in interactive, lecturing and tutorial modes. The progress of the students is periodically monitored.

The Practice

- Students are identified based on a written test
- The written exam comprises of MCQ, Fill ups from basic level physics.
- Based on the marks obtained, Slow learners, medium learners and advanced learners are identified.
- Out of class hour discussion, lectures, special test are regularly conducted
- The student's progression is monitored

Evidence of success

Student's performance is studied based on the assessment and university marks. It is evident that the bridge course helps them to excel in their studies. Studies who have attended the bridge course shown constant improvement in their curriculars and Co-curricular activities. It is the success of the program.

Problems Encountered and Resources Required

Lack of regular attendance of students due to covid pandemic.

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2022-2023

EXTNENSION ACTIVITY REPORT

Topic: அறிவியல் அறிவோம்

Objective: the Aspects of education which emphasizes community Services.

Context: knowing science experimentally and conceptually.

Practice:

Extension activities are carried out in the nearby middle schools to demonstrate science concepts through science experiments, models and charts.

Department of Physics organised an extension activity on the topic "அறிவியல் அறிவோம்" at Hindu Middle School, Ayyaneri on 17.03.2023. Extension Activity aims in inculcating Science Concepts through experiments, Models and Charts to school students by organising science exhibition. Science Exhibition was inaugurated by Mrs.Venkatammal, Secretary, Hindu Middle School, Ayyaneri. Department Students explained various science concepts through experiment, Models and Charts. Science Quiz was conducted to School Students of class 6, 7, 8 and prizes were distributed. Sports Competition like Running Race, Lemon and Spoon were organised for students of class 1 to 5 and Pre KG. Hope this activity creates awareness among school students regarding the role of science and technology in the sustainable growth and development of the country.

கோவில்பட்டி ஜி.வி.என்., கல்லூரியில் கருத்தரங்கு

கோவில்பட்டி, மார்ச் 18– கோவில்பட்டி ஜி.வி.என்., கல்லூரியின் இயற்பியல் துறை சார்பாக, அய்யனேரி இந்து நடுநிலைப்பள்ளியில் 'அறிவியல் அறிவோம்' என்ற தலைப்பில் கருத்தரங்கு நடந்தது.

கருத்தரங்கிற்கு, இந்து நடுநிலைப்பள்ளி செயலர் வெங்கடம்மாள், தலைமை ஆசிரியர் மாரியம்மாள் மற்றும் ஜி.வி.என்., கல்லூரி இயற்பியல் துறைத் தலைவர் சித்ரலேகா ஆகியோர் முன்னிலை வகித்தனர். இயற்பியல் துறை பேராசிரியர் கவிதா மஞ்சு வரவேற்றார்.

இதைத் தொடர்ந்து, இயற்பியல் துறை மாணவர்கள் சார்பாக அறிவியல் கண்காட்சி, விளாடி– வினா போன்ற பல்வேறு போட்டிகள் நடத்தப்பட்டன

இதில், அனைத்து வகுப்புகளைச் சார்ந்த மாணவர்களும் ஆர்வமுடன் கலந்து கொண்டனர், வினாடி–வினா போட்டியில் மாணவிகளான மதுமிதா, முத்துமாரி, சண்முகப்பிரியா ஆகியோர், முதல் பரிசை வென்றனர். போட்டியில் வெற்றி பெற்ற பள்ளி மாணவ, மாணவிகளுக்கு இந்து நடுநிலைப்பள்ளி செயலர் வெங்கடம்மாள், பரிசு வழங்கினார். இயற்பியல் துறை பேராசிரியர் அங்குமலர் நன்றி கூறினார்.

இதற்கான ஏற்பாடுகளை, இயற்பியல் துறை பேராசிரியர் வேல்முருகன் செய்திருந்தார்.

Evidence of Success:

Students of underprivileged community explored scientific facts and theories and gained more interest in fields of science.

Problems Encountered:

The time availability for conducting extension activity in addition to the regular programmes of the college is very limited. When we prolong the programme to late evening, the students from remote villages find it very difficult to attend during late hours as they do not have bus/transportation facilities.

(2023-24)

Title: Hands-on Training Programme

Objective: The main objectives of Hands-on training program are

- To Enhance Conceptual Understanding,
- To Encourage Active Learning,
- To Promote Awareness of Science and Technology
- To Foster Interest in Physics

- **The Context:**

This initiative aimed at introducing students to fundamental science concepts through **experiments, models, and charts**, fostering a deeper understanding of the subject. The programme also provided an opportunity for students to appreciate the relevance of scientific principles in real-world applications, promoting awareness of how science and technology contribute to the sustainable growth and development of the country.

Practice:

1. **Active Student Involvement**: School students actively participated in experiments, took notes, and discussed results in groups. This active participation ensured better retention and understanding of scientific concepts.

2. **Learning Through Application**: The hands-on approach facilitated a better understanding of how theoretical knowledge is applied in real-world scenarios. This also helped to bridge the gap between textbook learning and practical applications.
3. **Collaboration and Teamwork**: Students worked together in small groups, sharing insights, conducting experiments, and solving problems collaboratively. This fostered teamwork and communication skills among the students.
4. **Increased Awareness of Science & Technology**: Through discussions on the importance of physics in modern technology, school students were able to understand how advancements in science and technology contribute to the sustainable development of the nation.

Evidence of Success:

The success of this hands-on training programme provided a comprehensive and practical approach to learning, which is crucial for students in their pursuit of knowledge in science. This initiative not only strengthened their scientific knowledge but also gained a deeper understanding of physics concepts and developed the ability to apply theoretical knowledge in practical scenarios. The interactive nature of the programme sparked curiosity among the students, motivating them to explore the subject further and consider careers in science and technology. Presenting experiments, explaining concepts to peers, and engaging in discussions enhanced the students' communication skills and their ability to articulate scientific ideas clearly.

- **Problems Encountered:**

Despite the successful execution of the **Hands-on Training Programme** on 13th October 2023, several challenges were encountered during the planning and implementation phases. The time allotted for the event was limited, which made it challenging to cover all planned activities in detail. Some experiments had to be rushed, and the time for student interaction and Q&A was cut short. Funding for the required materials, models, and experimental equipment was limited. Some of the models that could have enhanced the experience were out of budget.

2024-2025

Extension Activity: DAK community Development Program

Title of the Practice: *DAK Community Development Program*
Date: 29.08.2024 – 30.08.2024
Organised by: Department of Physics
Collaborating Agency: Government Post Office, Kovilpatti

1. Objectives of the Practice

- To provide essential government-related services to students and the local community.

- To improve digital literacy and awareness of government e-services.
- To streamline access to identification and financial tools such as Aadhar, e-PAN, and postal accounts.
- To strengthen community engagement through hands-on extension activities.
- To empower residents by facilitating easier navigation of digital and administrative processes.

2. Context

With the increasing digitization of government services, many individuals—especially rural residents and students—face challenges in accessing and understanding essential documentation processes. Recognizing this gap, the Department of Physics, in collaboration with the Government Post Office, Kovilpatti, organized the **DAK Community Development Program**. The initiative aimed to bridge the digital divide by offering expert-guided assistance in Aadhar and PAN services, as well as in postal financial accounts.

3. The Practice

The two-day programme provided doorstep access to multiple essential services.
Key activities included:

a. Aadhar-Related Services

- New Aadhar card enrollment
- Aadhar corrections (name, address, mobile number, etc.)
- Aadhar renewal and updates

b. Financial & Identification Assistance

- **e-PAN card generation** with step-by-step guidance
- Help with opening and accessing **Post Office Savings Accounts**
- Awareness on secure digital transactions and financial literacy

c. Postal Department Support

Staff from the Government Post Office offered personalized guidance, ensuring accuracy and smooth processing. The Physics Department volunteers assisted in registration, organizing queues, and helping participants understand the procedures.This collaborative initiative helped streamline service delivery, reducing the time, cost, and effort required for individuals to access these essential facilities.

4. Evidence of Success

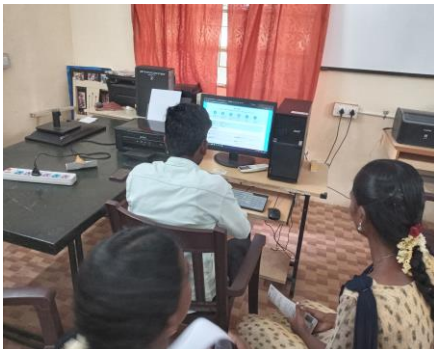
- A large number of students and community members benefited from the services during the two-day event.
- Participants appreciated the convenience of accessing Aadhar and e-PAN services at the campus itself.
- The initiative enhanced awareness of digital government services and improved confidence in using them.
- Faculty noted active participation and improved social responsibility among student volunteers.
- Positive feedback highlighted the efficiency and user-friendliness of the program.

5. Problems Encountered & Resources Required

- Minor delays occurred due to network and connectivity issues.
- Additional digital infrastructure (computers, biometric equipment) would further enhance service speed.
- Continued collaboration with government departments is essential for future programs.

6. Conclusion

The **DAK Community Development Program** was a successful extension activity that not only served the public but also enriched students with practical exposure to community service and digital governance. By providing crucial identification and financial services in an accessible manner, the Physics Department contributed meaningfully to community welfare and digital empowerment. This initiative stands as an impactful best practice that aligns with the institution's commitment to social responsibility and outreach.



Title: *Exposure Visit to Bio-Mass Plant and Science Centre, Tirunelveli*
Date of Visit: 24 January 2025
Number of Participants: 29 Students + 2 Faculty Members
Faculty Coordinators:

- Mr. K. Velmurugan
- Ms. S. Devadharsini

1. Objectives of the Practice

- To provide students with experiential learning opportunities beyond the classroom.
- To impart firsthand knowledge of renewable energy sources, specifically bio-mass energy production.
- To bridge the gap between theoretical understanding and real-world applications.
- To cultivate scientific curiosity and promote interest in emerging technologies and sustainable energy practices.
- To expose students to diverse scientific exhibits and modern technological advancements through a visit to the Science Centre, Tirunelveli.

2. Context

As the demand for sustainable energy solutions grows, it is essential for Physics students to understand renewable energy technologies both conceptually and practically. The exposure visit aimed to meet this need by facilitating direct observation of a functioning Bio-Mass Plant, followed by an interactive learning session at the Science Centre. This initiative forms part of the department's continual efforts to enhance experiential learning.

3. The Practice

a. Visit to Bio-Mass Plant – The M.D.T. Hindu College, Tirunelveli

Students were provided with an in-depth explanation of the functioning and key components of the Bio-Mass Plant by **Dr. Seethalakshmi, Associate Professor, Department of Physics, The M.D.T. Hindu College**.
Key aspects covered:

- Conversion of organic material into energy
- Operational processes of bio-mass energy production
- Environmental advantages of renewable energy
- Opportunities for interaction, clarification, and discussion

The detailed session enabled students to understand the practical relevance of energy physics, sustainability, and environmental conservation.

b. Visit to Science Centre, Tirunelveli

Students explored various galleries that offered hands-on, interactive science experiences:

- **Fun Science Gallery:** Exhibits demonstrating curriculum-based science principles (e.g., Infinity Well, Vanishing Doll)
- **Popular Science Gallery:** Concepts related to everyday science (e.g., Liquid Storm, Magic Water Tap)
- **Electronics Gallery & New Wing:** Modern and advanced electronic systems, communication technologies, and applications
- **Mirror Magic Gallery:** Optical illusions and mirror-based scientific phenomena
- **Prehistoric Park:** Animated dinosaur models depicting prehistoric life
- **Television Studio:** Demonstrations of photographic and visual effects used in media

c. Planetarium & 3D Theatre

- **Digital Planetarium:** 8-meter dome offering immersive astronomical shows with 7.1 digital audio
- **3D Theatre:** Short films such as *Ring of Fire* and *Shark Island* that enhanced visual learning through 3D immersion

4. Evidence of Success

- Students gained significant insights into renewable energy technologies, especially bio-mass energy production.
- The visit effectively connected theoretical knowledge with real-life scientific applications.
- Increased student curiosity and engagement in environmental physics and electronics.
- Participants expressed deep appreciation for the practical exposure.
- Faculty observed active student involvement, questioning, and enthusiasm throughout the visit.
- The overall experience contributed to holistic learning beyond traditional classroom teaching.

5. Problems Encountered & Resources Required

- No major issues were encountered during the visit.
- Coordinated transportation and scheduling were essential for the smooth execution of the program.
- Continued institutional support is required to organize similar exposure visits in the future.

6. Conclusion

The exposure visit to the Bio-Mass Plant and the Science Centre, Tirunelveli, proved to be a highly enriching educational experience. It successfully enhanced the students' understanding of renewable energy, electronics, astronomy, and scientific phenomena through direct interaction and observation. The initiative aligns with the department's commitment to providing experiential learning and equipping students with knowledge relevant to contemporary scientific advancements.

Title of the Practice

Outreach Programme – Beyond School Walls: "A Guide to Science Courses, Careers, and Scholarships"

Objective of the Practice

To promote science education among higher secondary school students by:

- Raising awareness about the value and scope of science in higher education.
- Providing clear information about undergraduate science courses and career prospects.
- Showcasing the strengths of GVN College and the opportunities it offers.
- Encouraging students to pursue higher education through available scholarships and financial aid.

Context

In the rapidly evolving global landscape, science and technology play a pivotal role in shaping the future. Many school students, especially from rural or economically challenged backgrounds, lack adequate exposure to science career pathways and financial assistance options. This outreach initiative

was conceptualized to bridge that gap and guide students in making informed academic and career choices.

The Practice

The Department of Physics at G.Venkataswamy Naidu College conducted outreach sessions on the **15th and 17th of February 2025** at two Government Higher Secondary Schools — **Illyarasendhal** and **Pillaiyarnatham**.

Faculty members led interactive sessions covering the following key areas:

1. **Importance of Science Education**
    - Highlighted the role of science in solving societal problems and driving innovation.
    - Emphasized how scientific thinking contributes to personal and national development.
2. **Awareness of Undergraduate Science Courses**
    - Provided information on UG programs such as Physics, Chemistry, Botany, and Mathematics.
    - Discussed course structures, interdisciplinary possibilities, and real-world applications.
3. **Career Opportunities in Science**
    - Explained career options in research, academics, industry, government services, and beyond.
    - Motivated students to explore diverse and dynamic science careers.
4. **Highlights of GVN College**
    - Presented the academic environment, faculty expertise, and infrastructure available at GVN College.
    - Discussed co-curricular activities, student support systems, and research involvement.
5. **Scholarships and Financial Aid**
    - Explained various scholarship schemes for both merit-based and need-based categories.
    - Provided guidance on eligibility criteria and the application process.

Evidence of Success

- Students actively participated in Q&A sessions, showing keen interest in science programs.
- Many expressed a desire to pursue higher studies at GVN College after understanding the academic and financial support available.
- Feedback from school faculty indicated that the sessions were informative and impactful.
- The initiative created a positive perception of science as a viable and exciting career option.

Problems Encountered and Resources Required

Challenges:

- Time constraints during school hours limited extended interactions.

- Transportation required advance planning.

Resources Required:

- Presentation materials (charts, brochures, multimedia aids)
- Transport arrangements for faculty
- Printed information on scholarship schemes and college programs

Conclusion

This outreach programme by the Department of Physics successfully extended the academic mission of GVN College beyond its campus. By directly engaging with school students and guiding them on the path of science education, the initiative contributed meaningfully to community engagement and educational inclusivity. Such practices will continue to be a cornerstone of the department's commitment to nurturing future scientists and scholars.