



BEST PRACTICE

HOLISTIC DEVELOPMENT OF STUDENTS

THROUGH SOCIAL LABS: h^3 APPROACH

FOCUS SOCIO ECONOMICALLY UNDERPRIVILEGED STUDENTS

Society is one of the major stakeholder of Higher education system, Perfect students inside the classrooms and laboratories needs to be introduced to activities and programmes which have impact on society as well on student itself, however campus too is an ultimate beneficiary of all these programmes and activities. Vision of the college is to produce individuals with sound scientific background having an edge for value system and respect for every aspect of diversity may it be gender, cultural or socio economic. Which is best possible through the holistic development of students.

College has adopted practices with focus on excellence, excellence is in the inception of every programme and activity offered by the college. We have tried best not to tag activities and programmes but to create a fine framework of Scientific, intellectual, emotional and creative programmes with societal impact. College has observed a sharp rise in the number of socioeconomically underprivileged students in the recent years. During the training sessions for different programmes full care is taken to bridge any gap in the understanding if it exists for socioeconomically underprivileged students

OBJECTIVES.

- Holistic development of students: Focus is on socioeconomically underprivileged students
- Creating young individuals with scientific temperament and value system having concern, care and empathy for the society and ecosystem
- Extending helping hand to the society for creation of scientifically enriched analytical, democratic, social system which has deep sense of respect for the scientific and cultural heritage of the country
- Providing important impetus for society, through industry interactions brought in by UG and PG Research programmes

The practice has helped students of the institute being recognised on national platform evident through National awards, increase in the number of placements and start-ups is also a testimonial to the holistic development of students.

CONTEXT.

Strong System of higher education is a significant contributor to the country's ability to compete in the global marketplace and is critical to social wellbeing, economic strength, scientific awareness and position as world leader. Colleges are brewing cauldrons, with fresh aroma of young energy, but these are complex organizations



facing difficult and multifaceted challenges. One of them is preparing productive scientifically inclined value based leaders who has the capability to add in the progress of Nation in 21st century. This can only be done through holistically developed young individuals.

Holistic education aims at helping students to be the most that they can be. According to Abraham Maslow this is "self – actualization" where the focus is on the development of every student's intellectual, Scientific, emotional, social, physical, artistic, creative and spiritual potentials.

The best practice is not a combination of some water tight compartmentalized activities rather it revolves around a core of excellence framework very intricately strewn around there major stakeholders Students, Teachers and society. Society is the lab where practices are undertaken. The practice requires

- A through and clear draft of activities explained to students in advance (Scientific workflow)
- Training of students to implement activities (communication exercises, Time management)
- Healthy rapport with society (Soft skills exercises)

Managing time is the major challenge faced during the implementation of practice, as students have their examination schedule, internal examinations and academic work to complete. Students need to be counselled to devote extra time to complete the activities designed for the practice.

PRACTICE:

different activities are designed and implemented which includes Society Connect programmes with the help of NSS, NCC, Red Cross, Red Ribbon Club and Personality development cell nested under flagship programme EEHSaS and ViSTAR, Scientific awareness programmes and study tours, Student exchange programmes, Extension lectures nested under PURE, Programme to create awareness about various policies and constitutional practices under PRIDE, Gender awareness programmes under Ananya. The approach talks about 3 h one is Head of Teacher, Heart of student and Heart of the society. Programmes are designed at college level by experienced Faculty, students are not merely instruments to implement these programmes but they are the thinkers they are the modifiers they are the moderators who implement these programmes. Measurable mechanism is in place to analyse the impact of practice on society as well as on students and on campus too.

At College level teachers who are the in charge of NSS, NCC, PDC, Red Cross, Red Ribbon Club and Flagship coordinators plan activities and programmes, communicated to the students through EAT which is an exhaustive and comprehensive module incorporating curricular, co-curricular and sports activities. EAT is prepared by the IQAC. Registrations are invited from the students for different activities, out of different activities floated in every segment, a student is suggested to opt some activities as per the choice and inclination of student.



Students are provided formal and informal training to implement activities as per the need through orientation programmes, a general orientation is organized for all the students during DEEKSHARAMBH in the starting of first year of UG Programme, specific orientation sessions are organized by NSS depending upon the activity. On the first visit to the selected adopted village or the societal residential clusters, 2 to 4 responsible society members of the locality are inducted into the teams constituted, these local society members guide the team during complete implementation of the programme.

Students keep record of the activities carried out in social laboratory pockets in a diary issued to them, this diary acts as a social ranking card. Teacher coordinator puts his/ her signature on the diary in the designated place. Activities carried in social lab are...

SOCIAL ACTIVITIES IN SOCIAL LABS (Flagship Programme EEHSaS, ViSTAR and ANANYA)

Swacchta Pakhwada (Cleanliness drive, Swacchta Pledge)

ODF Campaign

Run for Unity Campaign for National integration

Literacy Mission

Blood donation for society

Traffic awareness

Yoga camps in old help age clusters, Reform homes, Schools, House wives associations

Beti Bachao, Beti Padao

POCSO Act

Digital India Campaign

SCIENTIFIC ACTIVITIES FOR SOCIETY IN THE SOCIAL LABS (Flagship Programme PURE, EEHSaS)

AIDS Awareness

Water quality analysis and management

Helium scarcity campaign

Eclipses and superstitions

Move to spread awareness against superstitions

Plantation and its importance (Eco restoration and controlling our carbon footprints)



SCIENTIFIC ACTIVITIES FOR SOCIETY ON CAMPUS (FLAGSHIP PROGRAMME PURE)

Science Exhibitions on themes declared by DST every year on 28th February 2018

Celebration of International years declared by UNO

Preparation of water Health Chart for adopted village Pingleshwar residential habitats

Extension lectures by experts

TRAINING AND INSPIRATION TO STUDENTS ON CAMPUS

Leadership camps

Industry academia partnership workshops

Soft skill development workshops

Communication course

Small Research projects related to prevalent problem in the social system under investigation e.g. Water analysis and water management, COVID 19

Creation and maintenance of Aqua Laboratory on campus

On Campus training through Business Incubation Centre Swavlamban

EVIDENCE OF SUCCESS:

National and State level awards to students, Faculty and College in various categories like NSS Volunteer, Red Ribbon Club, Programme Officer NSS.

Strengthened placement profile

Strong student Progression, more and more students opting for higher studies

Increase in the number of students clearing state and National level exams like CSIR NET and SET

Measurable public perception, increasing GER

Increase in the number of Female students

Increase in the number of start-ups incubated

College is further inspired to sign MOU with Heart fullness campus and Kevlayam Yoga life society based upon the performance of students and faculty in this sector and the benefits accorded by the society. This will be a boon to the college in the near future

Enhanced environmental awareness and Eco restoration practices on campus:



Trainings and FDP organized to train students for eco restoration practices in the society proved to be a symbiotic phenomenon, IQAC adopted some healthy practices for the eco restoration on campus, IQAC has got different audits done from the authorised agencies which includes

1. Energy Audit
2. Environmental Audit
3. Green Audit

College has also installed a 40 kw on grid RESCO Roof top Solar power plant, initially a MOU was signed with AZURE for 20 kw plant which later on was escalated to 40 kw. It is also worth mentioning over here that college has lush green campus with an envelope of not less than 2900 generic and exotic plants.

PROBLEMS ENCOUNTERED AND RESOURCES REQUIRED

PROBLEMS ENCOUNTERED

Though the practice in itself is a great success over the years, even then following problems are identified after a great pondering over , which should be rectified in the years to come.

- Time management Academic pressure on students
- Doubts in the mind of students about the scope and success
- Team management: Challenge for Student group leaders and teacher incharge
- Lack of accountability
- Ambiguous contingency plans
- Lack of stakeholder participation (Societal members)
- Financial constraints for outsourcing of trainers for trainings and experts for FDP

RESOURCES REQUIRED

- Human Resource, Students as well as dedicated Faculty
- Trainers and Experts for training and FDP
- Financial Resources
- Adopted village and Societal pockets as social labs

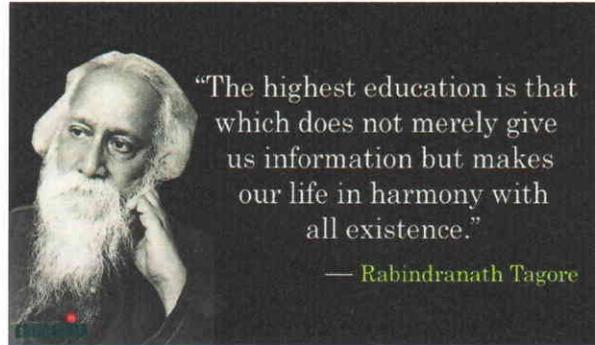
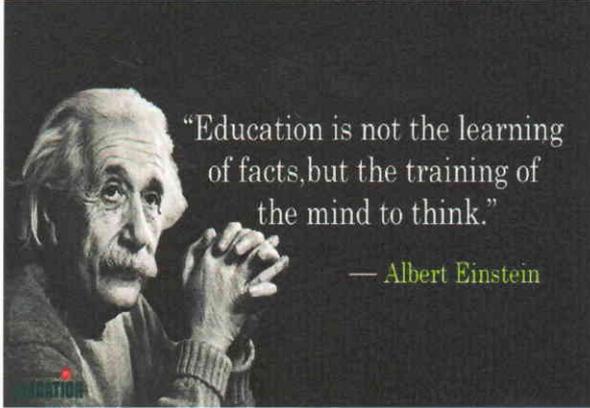




BEST PRACTICE

**Excellence Acquisition through
participative experiential learning:
Flagship framework accomplishment**

व्यूह रचना: एक कदम उत्कृष्टता की ओर



"Tell me and I forget, teach me and I may remember, involve me and I learn."

Confucius adaptation

College has adopted practices with focus on excellence, excellence is in the genesis of every programme and activity offered by the college. While on one platform we are bringing in holistic development of students through Society connect programmes, the diversity and vibrancy of the student population on campus is channelized towards achieving best for them through experiential learning. Experiential learning is a compulsory part of the curricula, delivered by experienced faculty through innovative ICT based activities in blended mode which promote participative learning. Flagship



programmes provide a well-knit network to launch experiential learning, where exercises are not stand alone but communicate to each other to bring about a healthy impact.

OBJECTIVES.

- Better understanding of complicated scientific laws
- Creating young individuals with scientific temperament and robust analytical thoughtful persona.
- Providing important impetus for society, through industry interactions brought in by UG and PG Research programmes
- Promoting useful innovation ecosystem on campus.

The practice has resulted into the better understanding of academic content, as is evident from the results and merit positions secured every year by the college students. Students have better insight into their own skills, interests, passions and values. With the help of the practice students have skill sets which helps in boosting their moral, confidence and bring in leadership skill naturally.

CONTEXT.

There is a pan India consensus, which recognises the criticality of education as the most important driver for socioeconomic and political transformations. The catalytic role played by higher education in National Development can never be ignored and has a very important say in the knowledge society.

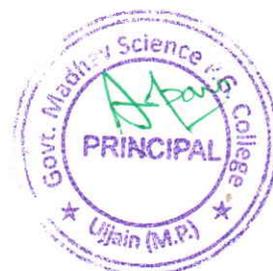
Post-secondary education needs to prepare graduates with new measurable skill sets and a wide range of competencies to enter a more complex and interdependent world.

Experiential Learning is the process of learning by doing , the practice aims at engaging students in hands-on experiences and reflection, they are better able to connect theories and knowledge learned in the classroom to real-world situations. College is practicing experiential learning in

- Curricula (Practicals in UG and PG classes)
- CCE Modes Projects individual as well as group projects
- UG and PG Research programme R&D based
- Society connect programmes and outreach activities

When students participate in experiential education opportunities, they gain:

- A better understanding of course material
- A broader view of the world and an appreciation of community
- Insight into their own skills, interests, passions, and values
- Opportunities to collaborate with diverse organizations and people
- Positive professional practices and skill sets



- The gratification of assisting in meeting community needs
- Self-confidence and leadership skills

PRACTICE:

Different activities for experiential learning are designed and nested under fine network of Flagship programmes, with a purpose and meaning. College has launched specific flagship programmes to promote scientific temperament through experiential learning which includes

- PURE (Pursuit for Research Excellence: Programme to promote R&D activities)
- Vilakshan (Flagship programme to celebrate best among the outstanding through organising academic lectures)
- EEHSaS (Programme for Earth, Environment, Health, Society and Science through projects and activities)
- ViSTAR (Vigyan for Society Transformation through Application of Research)
- SWAVLAMBAN (Business Incubation Centre)
- PRIDE (Programme for Policy planning and implementation from Development to Execution)

Flagship programmes provide direction and organization to the whole practice. EAT module allows smooth organization with time management for all activities without overlap. With Flagship programme it becomes exciting for the student to relate to the activity

- **EXPERIENTIAL LEARNING THROUGH CURRICULA: (PURE)**

Every subject has practical as an important part of their syllabus. Practical has weightage of about 30% in the total scheme of marks. Whatever a student studies in the theory paper is learnt in the laboratories through practical. Instructors present the alternative methods to perform experiments to get the students acquainted to the concept. Students are also informed about the industrial applications of the practical they are doing. Research papers related to the practical are also collected by the students which develops curiosity among students

CASE STUDY 1. CHEMISTRY

FIRST ORDER ACID HYDROLYSIS OF METHYL ACETATE:

After the student has done the experiment volumetrically, students are instructed to ponder over the experimental situation, search the webspaces and come over next day with alternative solutions. This participative exercise has resulted into collection of very good authentic research papers from eminent scientists with collection of alternative methods like spectroscopic, potentiometric, colourimetric etc. Students are also instructed to submit Industrial applications of the exercise. Students also search for scope of further work.



CASE STUDY 2. CHEMISTRY

SYNTHESIS OF ASPIRIN

Once the students has synthesized Aspirin in the laboratory with traditional acetylation method, Instructor allows them to discover new green methods of synthesis with the help of MICROWAVE ASSISTED ORGANIC SYNTHESIS REACTOR. During the exercise one hand student discovers Green chemistry and environmental protection techniques, he/ she is cautiously led towards the usage of Aspirin as wonder drug used in the market for cardiology patients under the name Ecospirin. One of the identified advanced learner is inspired to present drug discovery process next day with PPT. Instructor guide the student about the new concepts in the drug discovery process.

- **ASSIGNMENTS AND SEMINARS:**

Thought provoking assignments and seminars are allotted to students, which inculcate in them habit to construct on their own and find solutions to problems, it also inculcates in them habit to read and consult library whether physically or through remote access.

- **SELF STRUCTURED ASSIGNMENTS;**

In this practice student himself / herself comes up with the topic of assignment, Teacher here become facilitator and provides learning environment only. This exercise has become popular in PG Classes

- **SAATHI HAATH BADHANA (PEER SUPPORT)**

A symbiotic exercise by the Peers for the peers, advanced learners take lead and complete group assignments and projects

- **PARTICIPATIVE LEARNING BASED CCE MODES**

Different participative learning based modes which support experiential learning are used

- **TRAININGS**

Trainings are organized every year with MOU Partners and other training imparting exercises. Training help students to work on equipment like HPLC , UV, IR and MOS which are beyond the domain of curriculum. These sophisticated equipment provide them research insight as well as help students during their placement drive.

- **UG AND PG RESEARCH PROGRAMME (PURE)**

This is a very ambitious programme of college taken care by the flagship programme PURE. Projects are allotted to students, Guide is also allotted as per the nature of the project. These projects are not financially funded however full infrastructure support in the form of Laboratory, ICT, Glassware Chemicals and



library is extended to students. In the recent 5 years every year 2 projects have been sanctioned by IQAC R&D Cell. Projects in following two categories are sanctioned.

- Research and Development Related Projects
- Societal Projects

- **STUDY TOURS**

Study tours to various places of importance like Observatory, planetarium, local industrial units, Shipra yatras to understand causes of pollution levels in river Shipra are organized. Study tours present the real time problems to students and motivate them to find solutions.

- **SCIENCE EXHIBITION:**

Science Exhibition is culmination of yearlong activities organized for experiential learning. College has rich heritage to celebrate every year on the theme declared by UNO. For the whole year different activities are organized and then on National Science Day a 28th February, exhibition is organized on the major theme.

- **STUDENT EXCHANGE**

EVIDENCE OF SUCCESS:

Increase in the merit positions

Strengthened placement profile

Increase in the number of start-ups incubated on campus.

Strong student Progression, more and more students opting for higher studies

Increase in the number of students clearing state and National level exams like CSIR NET and SET

Increase in the number of students participating in national level quiz and other competitions.

Indigenous Aqua lab constructed by students in the campus which holdswater

Recorded Flora, Fauna , Water Quality and Rock Morphology of campus.

Measurable public perception, increasing GER

Increase in the number of Female students

Enhanced environmental awareness and Eco restoration practices on campus:

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- Ambiguous contingency plans
- Financial constraints for outsourcing of trainers for trainings and experts

• RESOURCES REQUIRED

- Human Resource. Students as well as dedicated Faculty
- Trainers and Experts for training and FDP
- Financial Resources
- Infrastructural Resources
- High Dedication of Faculty.

FUTURE PLANS

- MOU with Energy Swaraj Foundation to start assembly workshop on Solar Energy based products in college like Solar lanterns etc.
- Agri Research Lab and Bee Keeping in the campus to give hands on experience on Agri based projects.

