



VALLURUPALLI NAGESWARA RAO VIGNANA JYOTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY

An Autonomous Institute, NAAC Accredited with 'A' Grade
NBA Accredited for CE, EEE, ME, ECE, CSE, EIE, IT B.Tech Courses
Approved by AICTE, New Delhi, Affiliated to JNTUH
Recognized as "College with Potential for Excellence" by UGC
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Best Practices

BEST PRACTICE-1

1. Title of the Practice

Fusion of "Learner-centric" Pedagogy to achieve Graduate Attributes.

2. Objectives of the Practice

- ❖ Develop "Learner- Centric Environment".
- ❖ Knowledge and Process Skills development through "Course-Based Projects".
- ❖ Enhance usage of "ICT in Teaching-Learning Process".
- ❖ Achieving "Graduate Attributes' by all students

3. The Context

Technical education (TE) is getting globalized with the increasing demands and expectations from industry. The outcomes of TE are not merely a set of skills or knowledge acquired in the classroom setup but has to purposefully serve the requirements of all stakeholders and should, in turn, drive the economic growth of country and balance/create socio-economic equality.

In this context, achieving the universally accepted Graduate Attributes (GAs) by the student community is the major mission. The challenge of achieving GAs can be realized by shifting from Teacher-Centric to Learner- Centric approach (LCA). One particular pedagogy method may not be sufficient for the diversities existing in the institution. So, a fusion of several pedagogical - Learner-centric methods meets the needs of such diversity in various dimensions of TE in our institution.

4. The Practice

The teaching-learning process at VNR Vignana Jyothi Institute of Engineering and Technology is a fusion of various LCAs. Inspired and imbibed with "The Seven Habits of Highly Successful People" at all a level, intrinsic motivation is encouraged among the students. Teaching and Learning is personalized in a sense where the needs of distinct learning levels, interests, aspirations are taken care by the fusion of various methods listed below,

- ❖ Students of today and tomorrow are mostly doers, not listeners- rather want to learn in their own environment by doing "**Learning by Doing**".
- ❖ Students of different learning levels face a problem in TE, which can be

overcome by cooperative learning in the classroom like **“Think-Pair-Share”** and **“Process Oriented Guided Inquiry Learning (POGIL)”**.

- ❖ Real-time application based learning is one interesting way to make a student intrinsic which is achieved by **“WIT and WIL™”** (Why am I Teaching What I am Teaching? and Why am I learning What I am learning?) and **“Story Board”**, **“VNR Lab Protocol™”**. These methodologies will “Engage”, “involve” and “indulge” the students making them more imaginative, creative and independent in problem-solving through “Design and Planning” of experiments rather than just conducting experiments
- ❖ Self-driven learning projects help students to actively participate in modeling and development which is taken care by **“Course-Based Projects”**.
- ❖ Goals are set by Teachers and Learners through **“Career Vision Approach”** right from their first year to graduating year.
- ❖ Students have the flexibility to learn anytime and anywhere – meaning learning can happen outside traditional classroom **“Flipped classroom & Blended learning”**, **ICT enabled** lecturing through Learning Management Systems like MOODLE, Blogs are in place.

5. Evidence of Success

- ❖ The interactive learning through these initiatives enhanced the team spirit, learning capabilities and soft skills of the student. It created an environment to think out of the box, innovate and find a solution for the problems around them, which also created a responsibility towards addressing the societal problems. Many of the students are part of research projects leading to Patent publications, Startups.
- ❖ Rather than reading the textbooks or listening to the lecture, the classroom teaching is made interactive improved the retention skills. The proactive involvement in course-based projects enhanced the team spirit and motivated towards participation in National and State level competitions.
- ❖ The student success rate improved and this is reflected in quality and statistics of the placements. The employer’s feedback is a clear testimony of this claim.
- ❖ The students opting for international studies are able to come up with good grades and indulge in research because of the self and interactive learning aptitude.

6. Problems Encountered and Resources Required

- ❖ The admissions are done as per the common entrance examination conducted statewide. Students from various backgrounds, levels are admitted into the technical courses.
- ❖ The learning styles and retention vary across the student fraternity creating a challenge to the classroom deliverables.
- ❖ Continuous training on usage of ICT and teaching methodologies is difficult when the class work is in progress.

- ❖ Initial inertia for a paradigm shift.

BEST PRACTICE-2

1. Title of the practice:

SOCIETAL EMPOWERMENT THROUGH STUDENT PROJECTS.

2. Objectives of the practice:

- Involve students and faculty in innovating research projects linked with industry and academia.
- Conduct interdisciplinary research in cutting-edge technologies
- Improve the work ethos and make student more responsive to the needs of the society
- To enhance the student's overall understanding and appreciation of research by sharpening the student's practical laboratory skills.
- To upgrade the student's ability to collect, analyze and interpret experimental data.

3. The Context:

The field of education is currently undergoing a paradigm shift with the onus now being on the learner. Students at VNR Vignana Jyothi Institute of Engineering and Technology learn from a higher platform, in a culture to innovate (without fear) and with a mindset (held high) that they can make a positive difference to the society we all live in.

The selection of courses and curriculum design is in line with current and future critical issues and sustainable technologies that serve the society at large. The course structure assigns credits to the industry participation through Mini-Projects, Major Projects, and Internships. The internship provides exposure and opportunities for implementation of the knowledge gained academically and also design projects addressing the societal needs.

The **Research and Consultancy Cell (RCC) of the institute, promotes** research and innovation in leading-edge technologies. It facilitates the participation of faculty and students in the cross-domain platform. The problem-specific and inventive research taken up by our stakeholders addresses regional and national needs.

4. The Practice:

- The curriculum is redesigned to incorporate the industry needs and the socio-dimensional subjects that would enhance the student self-learning and the projects they take up address the problems of the society.
- Through course-based projects, the experiential learning component is increased.
- Additional expertise over and above the curriculum and as per the market needs is offered through **Certificate Courses** on a continuous basis.
- Students are motivated to take up projects of social relevance from II Year of their study. An exclusive facility **Weekend projects lab** is created to transform classroom learning into a project-based experience.
- The idea to innovate is encouraged by the **Big Idea Competition** and the best idea is rewarded.
- Infrastructure and seed money is provided to implant the ideas at **VJ HUB**, a facility created for the stakeholders for incubation.
- Advanced training and mentoring to the students is given through **Entrepreneurship Development Cell** to realize the idea into application/product at the institution.
- **Centers of Excellence** are established in every department identifying the respective domain expertise. The students and faculty across all departments participate in training sessions and project implementation.

5. Evidence of Success:

- Some of the projects carried out by students won best prizes by TCS and at national level competitions.
- Few student projects mentioned below reflect the relentless efforts of students towards inter-disciplinary societal research.
- The patent is published for Jarsh Pluto the first of its kind “Air Conditioned Helmet” and Patent is applied for “Stabilization device for Two wheeler”. Both the projects are being commercialized.
- “Cough and wheeze analyzer for respiratory digital health services” won a Bronze medal from China Association of Inventions and silver medal at International Innovation Fair Association.
- Solar Powered car and Weapon Locking and Tracking system projects are demonstrated in Design and Development competition. 3 social projects are

developed and submitted to Defense.

- Students are carrying out collaborative projects like “Development of Effective wireless sensor network system for water quality and quantity monitoring (aquasense)” with IIIT Hyderabad.
- Automated Commando Training System for Greyhounds, AP Police Academy, National Police Academy, Sensory Measuring Unit and Driving simulator for X Design are executed successfully.
- Socially beneficial projects to the tune of 286 were carried out
- 286 Social projects are implemented by students as a part of their curriculum during the last five years.

6. Problems Encountered and Resources Required

- Students come from a diversified background, balancing the curriculum changes between ready learners and slow learners.
- Maintaining equilibrium between Research and Academia.
- Identifying and retaining the research team
- Lack of encouraging recipient Industries for projects and internships.
- Explore prospects for enlarging the set of participating organizational entities which could potentially contribute complementary resources or expertise
- Expertize/training in upcoming technologies, on a continuous basis.
- Institutional network beyond the academic sphere.
- Development of non-scientific skills related to research.