7.2 BEST PRACTICE-1

"LEARNER-CENTRIC "PEDAGOGY TO ACHIEVE GRADUATE ATTRIBUTES"

1).**Information and Communication Technology (ICT) in Teaching and Learning Process**:

In recent times, life has become easier, due to the invention of ICT. In the last few decades, there has been a tremendous growth in the use of ICT in all fields such as education, facilities, industries, businesses, societies, lives of people. SCIENT INSTTITUTE OF TECHNOLOGY integrating ICT with the teaching and learning process in order to provide knowledge and skills to the learners to meet the challenges of educational environment. With the integration of ICT in education that one can teach students to be participants in the growth process in this era of rapid change. ICT having revolutionized the way people work today and are now transforming educational systems. During the last three decades, the changes in educational environment have been phenomenal. The model, focus, role of the learner and technology has been changed drastically from traditional instruction to virtual learning environment

Changes in Teaching and Learning Environment

Shifting the emphasis from teaching to learning can create a more interactive and engaging learning environment for teachers and learners. This new environment also involves a change in roles of both teachers and learners. The role of the teachers will change from knowledge transmitter to that of facilitator, knowledge navigator and sometime as co-learner. The new role of teachers demands a new way of thinking and understanding of the new vision of learning process. Learners will have more responsibilities of their own learning as they seek out, find, synthesize, and share their knowledge with others. ICT provides powerful tools to support the shift from teacher centered to learner centered paradigm and new roles of teacher, learner, curricula and new media. Learners are expected to collect, select, analyze, organize, extend, transform and present knowledge using ICT in authentic and active learning paradigm. Teachers are expected to create a new flexible and open learning environment with interactive, experimental and multimedia based delivery system. ICT helps teachers and learners to communicate and collaborate without boundaries, make learners autonomous and allow teachers to bring the whole world into classroom activities, especially the concept of on-line programmes. It is ultimately important to understand the roles of ICT in promoting educational changes. A basic principle is that the use of ICT changes the distribution and ownership of information resources in the space of

teaching and learning and thus changes the relationship among educational participants

Components of ICT for Teaching and Learning

a) **E-Classrooms**: Using LCD projector one teach in a easy method and one can learn in a easy way .our Scient Institute had LCD projectors in class rooms

b) **World Wide Web**: The World Wide Web is one of the several internet resources developed to help, publish, organize and provide access to information on the Internet.

Scient Institute had internet connection with high speed broadband connection

C) Social Media: Social media are perhaps the most promising and embracing technology. Some most commonly used social media are MySpace. Facebook, Delicious and Flicker, watsapp, Instagram, twitter etc. Scient Institute had Facebook, Instagram accounts and also class wise , dept wise students watsapp groups.

E- CLASSROOM TEACHING

2) <u>Learning by Doing:</u>

Learning by Doing is a guide to teaching and learning methods. Learning by Doing is method ,where a student carries out physical activities rather than listening to a lecture, is the most popular type of **learning** with students - '**doing**' helps them to gain a better understanding of the material .SCIENT INSTITUTE OF TECHNOLOGY provides best facilities to our student to practice the subject in advanced laboratories.

PRACTICE IN LABS

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3). **Think-Pair-Share:**

Think-pair-share (TPS) is a collaborative learning strategy where students work together to solve a problem or answer a question about an assigned reading. This strategy requires students to

(a) Think individually about a topic or answer to a question

(b) Share ideas with classmates.

The **Think-Pair-Share** strategy is designed to differentiate instruction by providing students time and structure for thinking on a given topic, enabling them to formulate individual ideas and share these ideas with a peer.

SHARING KNOWLEDGE SHARING AMONG THE STUDENTS (Think-Pair-Share)

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SHARING KNOWLEDGE SHARING AMONG THE STUDENTS (Think-Pair-Share)

4) <u>Process Oriented Guided Inquiry Learning (POGIL):</u>

There are two crucial aspects to the design of a POGIL activity. First, sufficient appropriate information must be provided for the initial "Exploration" so that students are able to develop the desired concepts. Second, the guiding questions must be sequenced in a carefully constructed manner so that not only do students reach the appropriate conclusion, but at the same time various process and learning skills are implemented and developed.

Typically the first few questions build on students' prior knowledge and direct attention to the information provided by the model. This is followed by questions designed to help promote the recognitions of relationships and patterns in the data, leading toward some concept development. The final questions may involve applying the concepts to new situations and generalizing students' new knowledge and understanding. Thus, POGIL activities follow the structure of the learning cycle of exploration, concept invention and application, and have a strong basis in constructivism.

In contrast to traditional classrooms, students in a POGIL classroom work in small groups (of 3 or 4) on a specially designed activity. Each student is assigned a role, such as manager, recorder, spokesperson or reflector. The instructor serves as a facilitator who listens to the discussion and intervenes at appropriate times to guide student learning. In groups, students discuss the answers to carefully crafted questions that lead them to consider the general ideas in question and to construct their own understanding of important course concepts. As ideas are formulated, groups share their findings and understanding to new and increasingly difficult problems or contexts.

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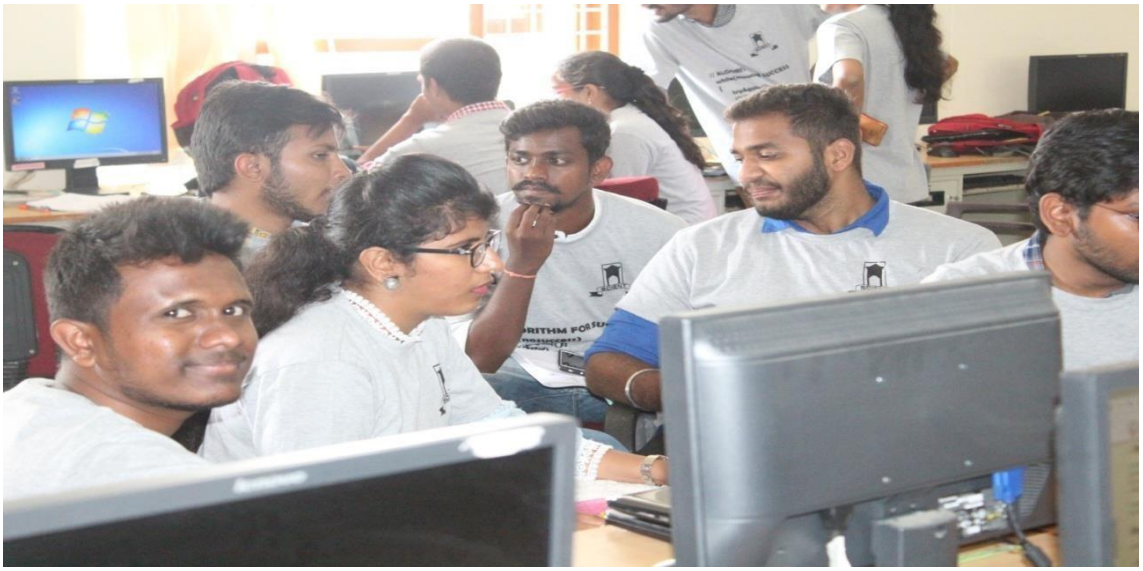
Rather than having the instructor begin class by defining terms and laying out concepts, students work actively to master material and formulate a deeper understanding of content. Built into the experience is the support of a variety of important process skills, including communication, teamwork, and critical thinking, which translates to a more complete understanding of the entire concept, and a lasting understanding.



POGIL PRACTICE

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POGIL PRACTICE

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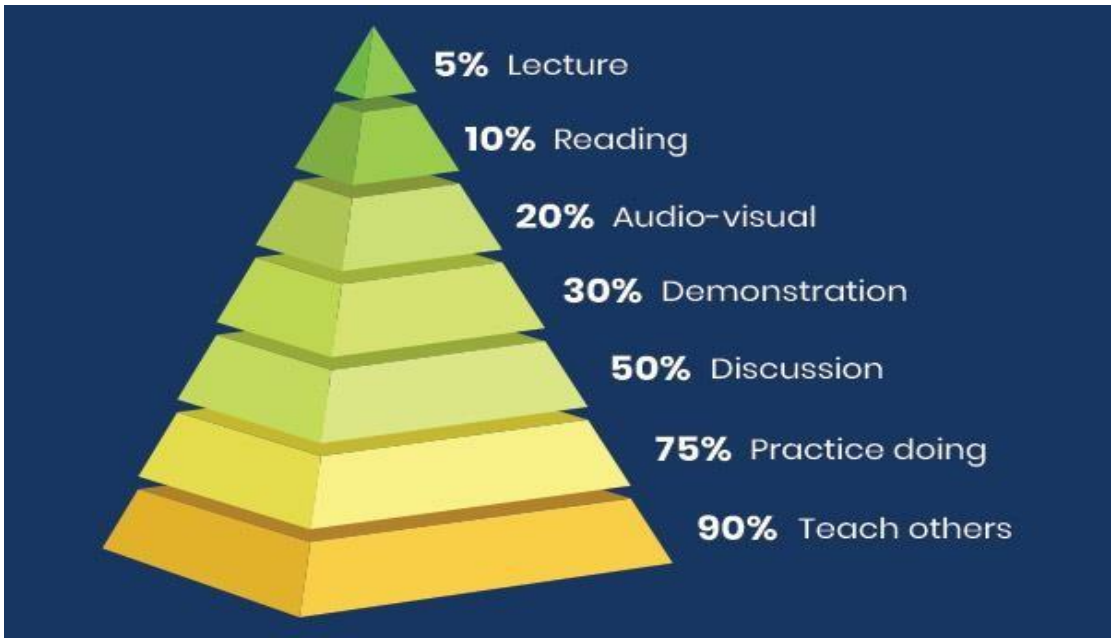
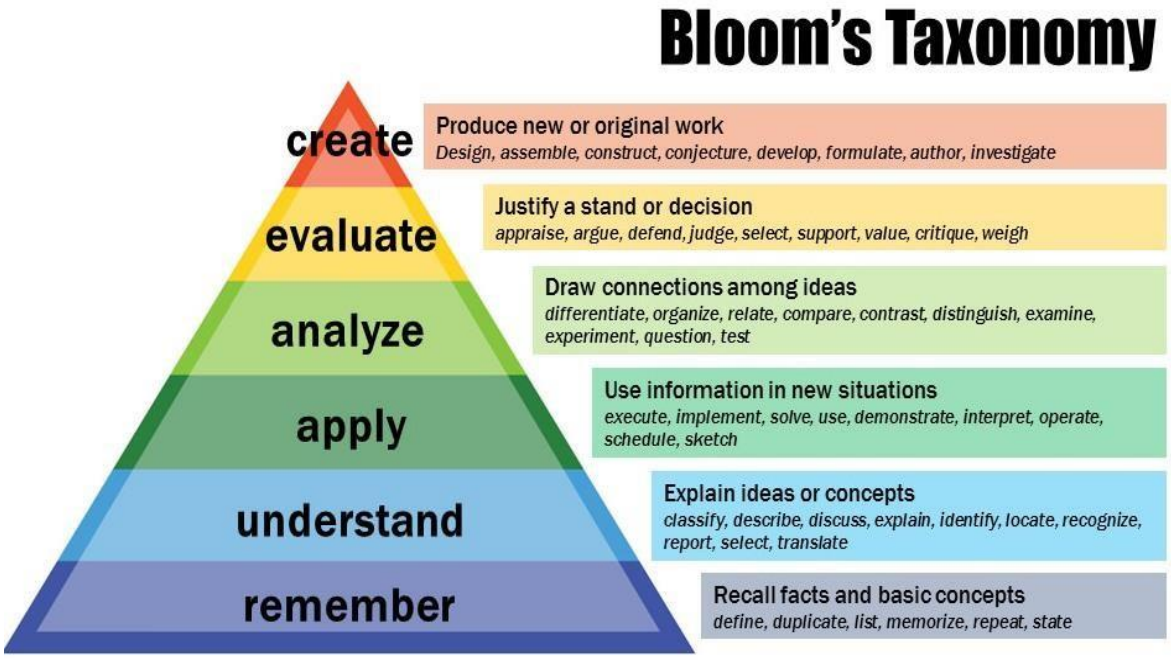
BLOOM'S TAXONOMY





PYRAMIDAL LEARNING

5). <u>Course-Based Projects:</u>

This new Program allows prospective Engineering students to see Industry from a student's perspective and allows students to spend a week with a current engineering in the multidisciplinary areas (Computer, Electrical, Electronics and Communication, Software &Hardware, or Systems Design) at the Industry and see what Industry life is really like. Visiting students will go around the Industry, see the manufacturing processes and facilities, and most importantly, get time to talk with working Engineers about their experiences. The Program is an opportunity for budding Engineers to learn what it means to be an Engineer. Students who participate in the program will spend time at that company while they are visiting.

COURSE-BASED PROJECTS

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6). <u>Career Vision Approach:</u>

Career Vision Approach is a method about what a student want to achieve in his **career** -- the major accomplishments a student hope to attain, the level or position to rise to, and the lasting impacts to make. This method should be something that inspires, energizes, motivates, and directs the SCIENT student towards their goal.

MOTIVATION TOWARDS GOAL

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7). <u>Flipped classroom & Blended learning:</u>

Blended Learning is a combination of online learning and face-to-face learning (often referred to as "traditional learning"). In Flipped **learning** teachers, administrators and instructors prepare audio or video lectures for learners to watch at home, on their own time. Research has proven that blended or flipped classrooms are the most effective pedagogical approach to learning because they move learning in the classroom from being a 'passive' experience to an 'active' one for student.

TRADITIONAL LEARNING

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BEST PRACTICE-2

1. Title of the practice:

STUDENT PROJECTS BASED ON SOCIETAL EMPOWERMENT.

2. Objectives of the practice:

- Involve students and faculty in interdisciplinary research in cutting-edge technologies
- To sharpen the student's practical laboratory skills.
- To upgrade the student's ability to collect, analyze and interpret experimental data.
- To upgrade skills in developing societal projects
- To motivate them towards their goal

3. The Context:

The course structure assigns credits to the industry participation through Mini-Projects, Major Projects addressing the societal needs and Internships. **The Research and Development Cell** of the institute, promotes research and innovation in technologies

4. The Practice:

Course-based projects, The best way to master a subject is by doing **projects**. Through a **project** student not only get a deeper understanding of the subject but also gain hands-on practical experience

Certificate Courses: Certification Course helps an individual to showcase his competency, commitment for the profession, build expertise in his professional subject area, and helps with job advancement. It is a designation earned by a person giving a kind of assurance to the company of his competencies of performing a job.

Big Idea Competition: Scient Institute provides plat form for our students to explore their innovations, intellectual projects and big ideas .R&D cell conducting project exhibition to develop projects for **societal empowerment** in the fields of Agriculture, Educations, Health and Swachatha

Weekend projects lab transform classroom learning into a project-based experience.

SCIENT HACKATHON: SCIENT HACKATHON is proving grounds for new ideas. They're especially good tools to stimulate the creative and problem-solving juices of developers. Unlike their course based projects where risk-taking may be frowned upon, in a hackathon there is a low cost of failure.

Research & Development Cell is important to gain knowledge to develop, design, enhance, and modify societal empowerment projects, services, technologies, business plans, processes and sometimes vision .R&D cell motivate students to incubate their ideas.

Entrepreneur and Development Cell: Inculcate entrepreneurial spirit and culture among the Engineering graduates and post graduates. ED cell conduct programs in Entrepreneurship enabling skills.

5. Evidence of Success:

Projects like "smart Helmet", "Cough and wheeze analyzer for respiratory digital health services", 'Solar Powered car' and' Weapon Locking and Tracking system'.

Some societal empower projects like 'smart walking stick for blind and old age people', 'fully automated solar power grass cutter' , 'development of effective wireless sensor network system for water quality and quantity monitoring' . Automated Commando Training System for Greyhounds and 86 Social projects are executed successfully by SCIENT students.

6. Problems Encountered and Resources Required:

Maintaining equilibrium between Research and Academia.
Identifying and retaining the research team
Expertise training in upcoming technologies, on a continuous basis.
Institutional network beyond the academic sphere.
Development of non-scientific skills related to research

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COURSE BASED PROJECTS

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Scient Institute of Technology - Placement cell organized a one day seminar on "CAREER GUIDANCE" in association with ACE Academy A.Y.2021-22.

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Scient Institute of Technology - Placement Cell organized a Student Development Programme on CAMPUS TO CORPORATE in collaboration with ICFAI BUSINESS SCHOOL A.Y.2021-22.

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Student devolopment program on" CAMPUS TO CORPORATE " seminar Organized by placement cell

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Seminar on "Life after Engineering: Jobs & Higher education" by Mr.Rayadas Manthena,Vicepresident,JP Morgan,USA,Newyork.

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Industrial visits

Industrial visits **provide the students with an opportunity to learn practically through interaction, working methods and employment practices**. It gives the students an exposure to current work practices as opposed to theoretical knowledge being taught at their college classrooms

Scient Institute of Technology organized a Industrial tour in association with TASK at Infosys SEZ Campus,Pocharam,Hyderabad A.Y.2021-22.

Scient Institute of Technology organized a Industrial tour in association with TASK at NRSC,Hyderabad A.Y.2021-22.

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Department of ECE & EEE organized an Industrial visit for II year students to NRSC(National Remote Sensing Center) , Jeedimetla,Hyderabad A.Y 2021-22.

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PROJECT EXIHIBITION

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PROJECT EXIHIBITION

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SCIENT HACKATHON

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