Teaching - Learning Processes

Describe Processes followed to improve quality of Teaching & Learning (25)

(Processes may include adherence to academic calendar and improving instruction methods using pedagogical initiatives such as real world examples, collaborative learning, quality of laboratory experience with regard to conducting experiments, recording observations, analysis of data etc. encouraging bright students, assisting weak students etc. The implementation details and impact analysis need to be documented)

The process followed to improve the quality in teaching learning in the department for the each semester as shown in fig

Best Practices

- · Implementation of Campus Management System (MIS)
- · Activity to enhance confidence and public speaking abilities of students
- · Documenting all the events and storing all the documents in the MIS system
- · Effective utilization of MIS to take corrective actions
- · Objective evaluation of performance of Faculty and the Departments

ACADEMIC CALENDER

Department prepares calendar of events based on the academic calendar of JNTUH Hyderabad and calendar of events of the college. The calendar of events of the Department includes the activities planned like guest lectures, industrial visit and assignment dates. The staff members and students adhere to the calendar of events to meet the department's planned events. According to the present scenario of teaching and learning process, modern techniques are adopted in our institution for the upliftment of the students' performance and for the achievement of good results.

Instructional Methods and Pedagogies

Teaching methods comprises the principles and methods used by teachers to enable student learning. These are determined partly on subject matter to be taught and partly by the nature of the learner.

The following methods are some of the appropriate and efficient methodologies according to the characteristic of the learner.

1. Talk & Chalk: Usage of black board, chalk and lecture
2. PPT: Power Point Presentation for the relevant topic
3. Visualization: Showing 3D objects to the students and explaining
4. Co-operative learning: A method of instruction characterized by students working together to reach a common goal
5. Enquiry based instruction: Prior intimation of the topic in the previous classes to the students for enquiry of the topic and asking the questions in the next class
6. Differentiation: Summarizing the types with similarities and differences
7. Technology: New & updated technology relevant to the course
8. Behavior management : Wide variety of skills and techniques that teachers use to keep students organized, orderly, focused, attentive, on task, and academically productive during a class
9. Professional development: improving their professional knowledge, competence, skill, and effectiveness
10. Virtual lab: IIT virtual labs
11. Seminars: Seminar should be given by the student
12. Brain storming: Giving a topic and allowing the students to think over it for new ideas
13. Buzz group: Formation of groups with 3-4 members in each and discussion on the Topic
14. Animated lecturers: Showing Animated videos to students
15. Pictorial sessions: 2D objects charts
16. Debate sessions: Assigning a topic to the students and allow them to debate
17. Quiz: Asking Questions on the covered topic by forming the batches.
18. OHP: Over head Projections of the images
19. Role play: Students are explored realistic situations by interacting with other people in a managed way in order to develop experience and trial different strategies in a supported environment.
20. Survey based assessment
21. NPTEL Videos

Quality of Class Room Teaching Classroom Teaching

- Each classroom is spacious and equipped with black board and audio visual aids to create a better ambience for effective teaching learning environment.
- Each lecture is scheduled for 50 minutes and Laboratory duration is 3 hrs.
- During the lecture, faculties take efforts to keep students engaged by reviewing and asking them questions on previous lecture and interactively deliver the lecture planned for the day.
- At the end of the lecture, students are encouraged to summarize, ask doubts from the content taught.
- Mentors are allocated for each year to monitor the class room randomly and also to have detailed list of students and inform to the parents about their activities.
- HoD and Principal monitors the class randomly and verify whether the syllabus is covered or not as per schedule for every 15 days.
- Assignments are given to students for their better performance and to assess them.
- Invited talks and seminars on the current trends are done regularly from the industry persons.
- Tutorial/Remedial classes are conducted for the slow learners based on their performance in external exams and after the first internals.
- Motivating and guiding students for higher studies and university ranks.
- Technical quiz is conducted for the students.
- All the faculties are requested to maintain Attendance registers, course files, Work dairies.
- Workshops are organized to help the students to understand the concepts beyond curriculum.
- One-one discussion, interaction between Professors and students increases confidence levels in students.
- Identifying bright and weak students.
- Motivate the weak students to attend tutorials and help them to solve more problems.
- Encourage the bright students to attend more workshops and technical talks.
- Industrial visits are conducted at least once a year to reduce the gap between industry and institute.

Conduct of Laboratory Experiments

Laboratories are equipped with the necessary infrastructure to facilitate the effective delivery of experiments in the laboratory. For laboratory sessions, students are required to bring the laboratory manual, control book, and record book. Students are advised to study the theory behind the experiment and conduct the experiment before the laboratory session. Students conduct experiments and record notes in the notebook. After completing the experiment, students are encouraged to discuss learning from the experience.

Each faculty performs the PO mapping analysis for the experiments offered by the university and select appropriate experiments, for the labs where the university offered a choice. Additional experiments are framed considering the mapping.

A sample mapping for MWE lab to verify the Alignment of Experiments with COs and POs is shown below:

Continuous Assessment in the laboratory:

Continuous evaluation is done by the faculty in every lab session for 10 marks based on rubrics as shown in Table below. The average marks of all session will be considered for awarding final internal assessment.

Rubrics used for continuous assessment in every lab

Parameters	Allocated Marks	High	Medium	Low
Conduction	5	Given circuit rigged up, /Program executed with output.	Given circuit rigged up with partial output/Given program was partially executed in	Given circuit not rigged up/Given program was not executed in the lab session.
		5 Marks	4 Mark	0 Mark
Viva Voce	5	Student answered all the viva voce Questions	Student Answered only a few viva voce questions	Student did not answer any viva voce question
		5 Marks	3 Mark	0 Mark
Record writing	5	completed record was submitted	Record was submitted but	Record was not submitted in the lab
		4 - 5 Marks	1 - 3 Marks	0 Mark

List of Rubrics used for continuous assessment in Internal lab

Parameters	Allocated Marks	High	Medium	Low
Write up	4	Student was able to design and draw the circuit diagram with expected output/Program/algorithm written correctly.	Student was able to draw the circuit diagram but does not design/program partially known.	Student was unable to draw circuit diagram/program/ algorithm not known.
		3 - 4 Marks	1 - 2 Marks	0 Mark
Execution	4	Student was able to conduct the given experiment with output.	Student was partially able to conduct the given experiment.	Student was not able to conduct given experiment.
		3 - 4 Marks	1 - 2 Marks	0 Mark
Viva Voce	2	Student answered all the questions.	Student answered only few question	Student did not answer any question
		2 Marks	1 Mark	0 Mark

Methodology to identify bright students

a. The bright students are identified from their participation in classroom discussion, performance in the assessment tests and participation in classroom seminars, questioning ability and University result analysis.

b. The bright students are encouraged to participate in symposia, workshops and seminars to gain knowledge on the latest developments.

c. The students are encouraged to take up industry based projects in the advanced topics under the guidance of the faculty members.

d. They are provided with the guidance about patents, project management and prototype building.

e. Bright students are encouraged to lead the student's association team which organizes various activities like paper presentation, poster presentation, lecture series etc.

f. Bright students having high academic track records are encouraged by faculties to achieve

university ranks and are also encouraged to take up competitive examinations like GATE, GRE etc.,

Methodology to identify weak students:

- ❖ Weak students are identified from their participation in classroom discussion, performance in the assessment tests (less than 15 out of 30) and University result analysis.
- ❖ Department arranges remedial lectures for weak students in all the courses.
- ❖ Teacher informs the parents regarding improvement in the performance of their ward on regular basis.
- ❖ Attempts are made by the teachers to give personal attention to the weak students.
- ❖ Specially developed question banks and assignments are given.
- ❖ Participative and progressive weak students are given a chance to improve team work to motivate and appreciate their efforts.
- ❖ A blended motivation and responsibility from both parents and faculty will create a positive mindset and will help to overcome the inabilities and hurdles faced by the slow learners.
- ❖ A special counseling and tutorial classes are conducted by the faculty for those students who have failed in any subject