

The processes followed by the department to improve quality of teaching and learning are mentioned below.

A. Adherence to Academic Calendar

- The faculty member's work in adherence with Academic Calendar issued by Dean Academic keeping in view University academic calendar specifying key milestones, schedule of class work, examinations, major events and activities.
- The HoD does the load distribution keeping in view course preferences from the faculty members and their expertise in particular domain.
- All the faculty members are required to prepare course file which includes lecture plan, study material, previous year University question papers, question bank, assignments, e-learning resource (NPTEL, PPT etc.) before the start of each academic session.
- The students are informed about Academic Calendar, time table, lecture plan, course objectives and outcomes at the commencement of the semester.

B. Use of Various instructional methods and pedagogical initiatives

The use of modern tools and techniques in teaching-learning process is being encouraged and promoted through promulgation of the institutional ICT policy, which specifies integration of pre-identified MOOCs, related NPTEL courses\lectures among other innovations into the teaching learning process. Some of the initiatives taken are mention below

i. Lecturing method and Interactive learning

Faculty is using various instructional methods in addition to lectures and tutorial for teaching and learning, which follows:

- **Quiz:** In order to enable the recapitulation and evaluation of the concepts taught in each lecture, a quiz is conducted.
- **Assignments:** Assignments are given to the students to make them self-reliant in solving problems through an understanding of concepts.

- **Presentations:** The faculty uses PowerPoint presentations as a teaching aid to employ visual mode for flowcharts, diagrams, animations etc for the better comprehension and retention.
- **e-Books:** e-Books are used as pedagogical strategy of Web resources for educational use and implemented in the classroom.

ii. **e-Learning through Information & Communication Technology (ICT)**

- WhatsApp groups are formed and used for timely circulation of information
- In order to provide the conceptual knowledge, video lectures on various topics are arranged through MOOC / NPTEL / Swayam concerned Websites.
- The Department also arrange the Web-based (e-learning) material in the form of a video lectures, PowerPoint presentations, questions banks etc.
- The students are encouraged to work in peers, present seminars on selected topics, problem solving sessions, quizzes etc. This enhances their academic competencies.
- Continuous assessment is done based on student’s performance in sessional tests, tutorials, assignments, attendance and practicals etc.

C. Methodologies to support weak students and encourage bright students

Identification of weak & Bright Students

The institute has a mentoring counselling system. One faculty member is appointed as mentor/counsellor for a batch of approximately 12 - 15 students. The mentor/counsellor identifies weak and bright students based on certain parameters as shown in table 2.13 below

Guidelines to identify weak students

Identification Criterion	Actions taken	Impact
<p>The faculty members identify weak students based on following parameters:</p> <ul style="list-style-type: none"> • Participation in activities 	<ul style="list-style-type: none"> • Remedial classes are conducted to improve the performance of the students • Formation of study groups where one or two bright students are 	<p>The actions taken have following impacts.</p> <ul style="list-style-type: none"> • The average

Identification Criterion	Actions taken	Impact
<ul style="list-style-type: none"> Result analysis: Students scoring less than 60% (aggregate) in their examination Day to day performance (class response, timely assignment submission, behavior) Attendance Level of self-confidence (low) Poor communication and presentation skills 	<p>kept as group mentors</p> <ul style="list-style-type: none"> Each faculty in the Department is given the responsibility of mentoring a group comprising of 12 - 15 students. Mentors give advice and help students pertaining to various issues. Mentors are permitted to approach parent of the student to facilitate problem solving and seek intervention to enhance the performance of the student Doubt clearing sessions are conducted by the faculty during tutorial classes. 	<p>attendance of group has improved from 50% to 75%.</p> <ul style="list-style-type: none"> The average academic performance has improved from 20% to 30%. Their participation in various academic activities has improved.

Guidelines to identify Bright students

Identification Criteria	Actions taken	Impact
<p>The faculty members identify bright students based on following parameters such as:</p> <ul style="list-style-type: none"> Participation in activities Result analysis: students scoring more than or equal to 60% (aggregate) in their examinations Day to day performance (class response, timely assignment submission, behavior) Attendance Level of self-confidence (high) Good communication and presentation skills 	<ul style="list-style-type: none"> Encouraging students to participate in various symposiums like quiz, poster presentation etc. Conferences, inter institution competition etc. Give additional assignments on the advanced topics, application development etc. Guiding the students for GATE/Competitive Examinations. Facilitating bright students in Annual Tech Fest by momento's / certificate of appreciation. 	<p>The actions taken have following impacts.</p> <ul style="list-style-type: none"> Research papers are published. About 10% of the students undertook problem based projects. Acquired university ranks

D. Quality of classroom teaching

To provide quality of class room teaching following methods are adopted by the faculty:

- Well-structured lecture plans are prepared for all courses.
- Before conducting the classes, topics covered are summarized with reference to CO coverage of the course for effective delivery.

- Faculty conducts an interactive session with students for enquiring about their doubts and views.
- Faculty conducts tutorials as per the time table.
- Faculty provides sufficient illustration for better understanding of students.
- Step-wise problem solving is conducted in the classroom.
- Participatory Learning is promoted.
- NPTEL (National Programme on Technology Enhanced Learning): To enhance the quality in teaching-learning, curriculum-based video and web courses students are encourage to access the available NPTEL online resources.
- Faculty shares study material with students in the form of e-resources.
- Connecting classroom beyond the classroom: Interactive sessions are conducted beyond classroom to enhance the learning of students.

E. Conduct of Laboratory Experiments

The labs are well equipped with the necessary hardware and software, power backups and a good ambience for the conduction of necessary experiments.

- The batch of 60 students is divided into two or three groups based on practical subjects in that semester and the practicals are conducted for each group separately.
- The students are provided with laboratory manuals in the laboratory for reference.
- The lab sessions generally begin with the orientation followed by implementation of program whose basics logics and instruction are given to them by the faculty incharge.
- Throughout the conduction of the lab, the students are facilitated by the faculty incharge and the Lab Assistants who assist them in case any problem is face during conduct of experiment.
- The students record their outputs, gets them verified by the faculty member before finally documenting the same in their lab file for final assessment.

F. Continuous Assessment in the laboratory

Continuous evaluation is carried out by the faculty during every laboratory session based on:

- Completion of practical file of implemented program.
- Preparation/ readiness about program to be performed during the session.
- Their conduct/punctuality/sincerity/ involvement during laboratory session.

At the time of end semester, laboratory examination is conducted and the students are assessed on the basis of:

- Performance of a given experiment

- Viva-voce
- Attendance
- Continuous evaluation of practical file

G. Student feedback of teaching learning process and actions taken

Student feedback is collected on various parameters for assessing the effectiveness of teaching learning process. The parameters that are considered for assessment of effectiveness are:

- i. Course Outcomes
- ii. Teaching-learning process
- iii. Evaluation process

This feedback is collected at mid of the semester by Departmental Academic Advisory Committee and analyzed by the IQAC which is then communicated to the concerned faculty. Based on the outcome of analysis the faculty is either appreciated for better performance or is counselled for the improvement.