2.2 Teaching - Learning Processes (100)

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

Introduction

Contributions of AVN Institute of Engineering & Technology, CSE Department Faculty towards inculcating innovative means in Teaching and Learning are clearly elucidated both in our Department Records and on the Institute Website for peer review and critique. Our work is open to be enhanced or reproduced. Some of our inclusive ways are:

Collaborative Learning:

Collaborative learning is a group-based learning approach in which learners are mutually engaged in a coordinated fashion to achieve a learning goal or complete a learning task. Collaborative learning can increase learner engagement and promotes higher-order thinking, such as critical thinking. Collaborative learning is an umbrella term that covers a range of approaches in which learners achieve an academic goal together. It is a shift from traditional teacher-centered approaches to contemporary learning approaches, including student-centered, social learning, active learning, and constructivism.

Theory subjects and Lab:

- Groups comprising a maximum of five to six students are formed in each class to conduct the association activity.
- One from the group will be designated as the group leader.
- Each group may be assigned tasks by the faculty and a report on the activity will be provided by the respective group leader.
- An assessment on the report will be done by the faculty to analyze the expected outcome from the activity is achieved.
- The tasks assigned should be a minimum of three in each semester.
- The focus of the tasks should be on learning new technologies, enhance the knowledge on a particular topic, studying new tools to be in pace with the industry, doing some mini projects, etc.
- Faculty may encourage each group to disseminate the knowledge they have gathered to others.

Group Assignments:

- Description of the method– The students were asked to submit a group assignments in the form of unsolved problems from the Text Books, Old Question papers in each course. The objective is to develop technical and soft management skills of the Student.
- Significant results observed– The students develop soft management skills like teamwork, coordination, decision making, organizational behavior, leadership, time management and presentation skills along with the enhancement in technical skills, logical thinking, solving of tough problems.

Video / NPTL Lecturers:

By utilizing various video lecturers like IIT video lecture sessions and NPTL lecturers, the faculty makes the students to understand the tough subject concepts in interesting and easy way

Mentor-Mentee Faculty groups:

"Viewing teaching as scholarly work is essential. Teachers so often have to carry out their work in isolation from their colleagues. The result is that those who engage in innovative acts of teaching do not have many opportunities to build upon the work of others."

- Lee S. Shulman, president emeritus of The Carnegie Foundation for the Advancement of Teaching.

In continuing the process of Improvement in Teaching-Learning capabilities of the faculty, regular meetings are to be conducted by the Department Committee to discuss the significant achievements and implementations of previous semester and improve further by taking new steps.

1. The faculties are grouped as per their specialization and their subjects teaching in each Semester. Each group is headed by the senior faculty in that group, who continuously mentoring and guiding the remaining faculty of that group to improve their Teaching-Learning capabilities.
2. Class Observations and Evaluations - Monitor the Lesson plan implementation video, listening of the class by senior faculty members, analyze the Student Feedback and suggestions are given by the respective Mentor to improve the Mentee faculty Teaching-Learning abilities.
3. Quality of Assignments and Mid questions are reviewed by the respective group Mentor before review of Department Assessment Committee and upgraded.
4. It was decided to give Letter of Appreciation to the **Senior Subject Expert** faculty from each group by the Dept.

SENIOR SUBJECT EXPERTS FOR SOME SUBJECTS

Formal Languages of Automation Theory	**Dr. Shaik abdul Nabi (Subject Expert)**
	Mr. G. Dayakar
	Mr. B. Panna lal
	Mr. G. Anitha
	Mrs.B.Swathi
	Mrs.G.Swathi
	Mrs. B.Swapna
	Mr.N.Yadagiri
	Mrs. V.Rani
	Mr.B.Prashanth
Computer Networks	**Dr. Kalai Selvan Ambigapathy(Subject Expert)**
	Dr.Neeraj Kumar Rathore
	Mr. P. Ganesh
	Mrs. N.Manasa
	Mrs. K. Jhansirani
	Mrs. T. Srilatha
Operating System	**Dr. A.Balaram(Subject Expert)**
	Mr. A. Narendar
	Mr. K. Srinu
	Mr. A. Srinivas Reddy
	Mr. A. Raj Kumar
Computer Programming	**Dr. S. Sreenivasulu (Subject Expert)**
	Mr.P.Jagadish
	Mr.V.Prudvi Raj
	Mr.A. Shiva Kumar
	Mr.CT.Kiran kanth
	Mrs.B.Sravanthi

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

Introduction

Teaching is an art which includes knowledge, presentation, an art of dissemination and above all every aspect of paralinguistic's. Teaching demands broad knowledge of subject matter in all horizons, complete curriculum with standards, positive and caring attitude with Enthusiasm and a desire for learning and techniques of classroom management and a desire to make a difference in the lives of young people. I am sure that nobody will deny the fact

A teacher digs out the material from the classroom and uses accordingly we can use some materials:

SNO	METHOD
1	**Like-Pair-share**
2	**Five minute pause**
3	**Recollection of the topic**
4	**Observation Method**
5	**Face-to-Face conversation**

1**. Like- Pair-Share**: In this process students can think individually, then in pairs, and then share with the class. A teacher can involve the students in a better way where they can talk and share their experience with more confidence. This material opens up the ways of honing speaking skills where the students will be speaking after sharing their thoughts which help them to reproduce many thoughts because when we talk about second language, students say that they are unable to find out the Words/thoughts while speaking in English. So, this material can provide the platform of ideas/thoughts.

2. **Five minute pause**: The three minute pause provides a chance to the students to think and interpret the concepts and ideas that have just been introduced to and it would be easy for him/her to make connections to their prior knowledge for better understanding. Human being is a creature with impetus thoughts and for effective communication the synchronization of thoughts is

very necessary. The instructed three minute break can help out the students to think and comprehend in a better way.

3. **Recollection of the topic**: The teacher should take care of the topic which he is covering in the assigned class. He starts by making a bridge between the previous knowledge and the current knowledge (to be taught) and this can be better attained by providing recapitulation (recollecting). This can be achieved by asking questions related to the topic. Topic can be recapitulated by organizing quizzes in the class or the students can be asked to explain the topic like a teacher to the class and it really catalyses the learning environment of the classroom. Just introduced topic should be recapitulated by the students which would hone the understanding skill of the students.

4. **Observation Method**: Teacher can divide the classroom into the group and after assigning some task, teacher can walk around the classroom and observe students as they work to check for learning. The observation plays a vital role to tackle the mixed ability classroom. By this method, a teacher can pay attention towards the weak students of the class who do not pay attention to the class and hesitate to ask questions in front of the entire class.

5**. Face-to-Face conversation**: A teacher should try to have a face to face interaction with the students which is a key material to know the exact problems of the students. The level of understanding of the students can be better understood by F2F.The CSE Department using high end teaching and learning aids.

2.2.1. B. various instructional methods and pedagogical initiatives

1. Remedial Classes

Remedial classes are conducted for students who could not do well in examinations The Faculty discusses the answers written by the students and helps them to understand better by clearing the doubts and common mistakes in that subject.

2. Student Seminars

Students are encouraged to give seminars on the contemporary topics related to the course and are helped in preparing for the seminar. This not only develops the knowledge of the students in the latest areas, but also helps communication skills and presentation skills.

3. Group Discussions

Students are given various topics from the courses and as well as on various local and global issues when participating in group discussions through which they are made aware of the issues. The topics for the discussed issues have an impact on modern engineering tools in the various context, etc. MECAZAYA is conducting and organizing the group discussions in various trends in CSE engineering.

4. Guest Lectures

Guest lectures are conducted by inviting experts from the industry, Research organizations. This gives the student in-depth/advanced concepts in the course this in turn help in the attainment of all the program outcomes.

5. Workshops

Students are trained in theory and practice by conducting workshops regularly that turn for two to three days in latest technological developments both in the core and related areas. These programs are conducted by industry to equip student with the required knowledge and also to be aware of usage and applications of the technology in the real world. These programs also cultivate the student's interest in life•long learning. Hence attainment of all the program outcomes.

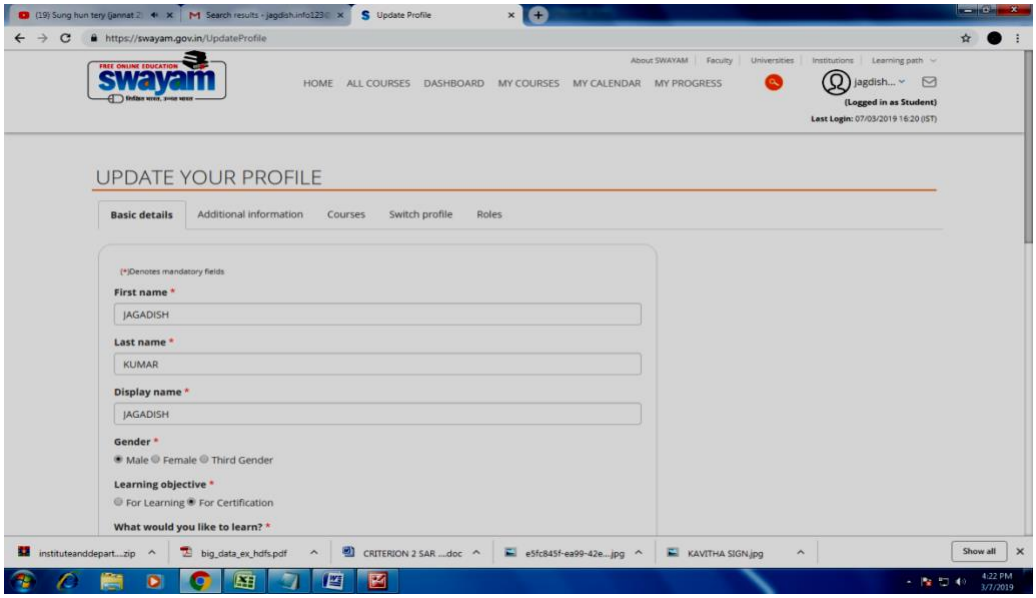
6. Projects

Students are made to go to industry to design and develop projects in third year second semester and final year second semester by forming a batch of not more than two students. They use all the knowledge they have gained during the course work. These projects further help them in understanding the issues that arise while executing the project models by meeting the realistic constraints. An internal guide is assigned to all projects and he/she guides from the starting stage until the completion of the project and also for the preparation of the documentation.

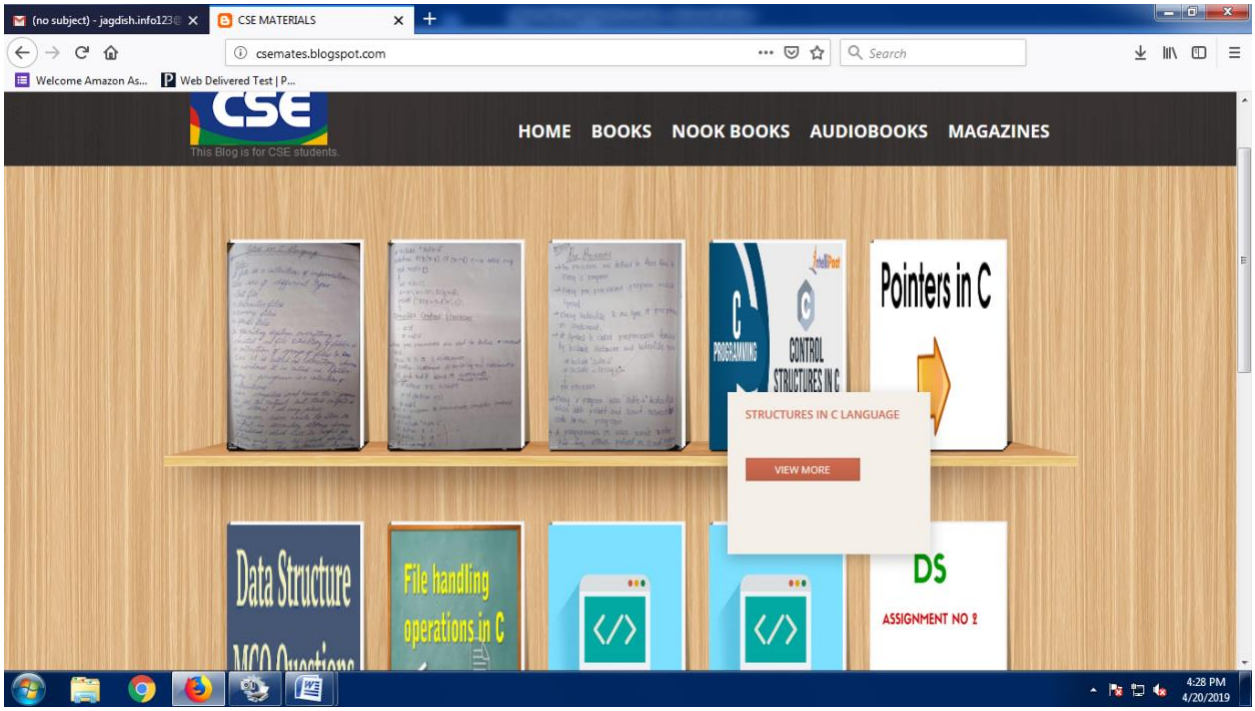
7. Video Lectures & Digital Library

Subjects like Software engineering, C/C++, Applied Physics, Computer Graphics, II, Machine Learning TOOLs etc. Are instructed through PPTs and Videos at departmental Tutorial & seminar halls. Instructions at lecture hall classes are taken through PPTs, where real world examples are to be covered.

Online Learning Course SWAYAM account



NPTEL VIDEOS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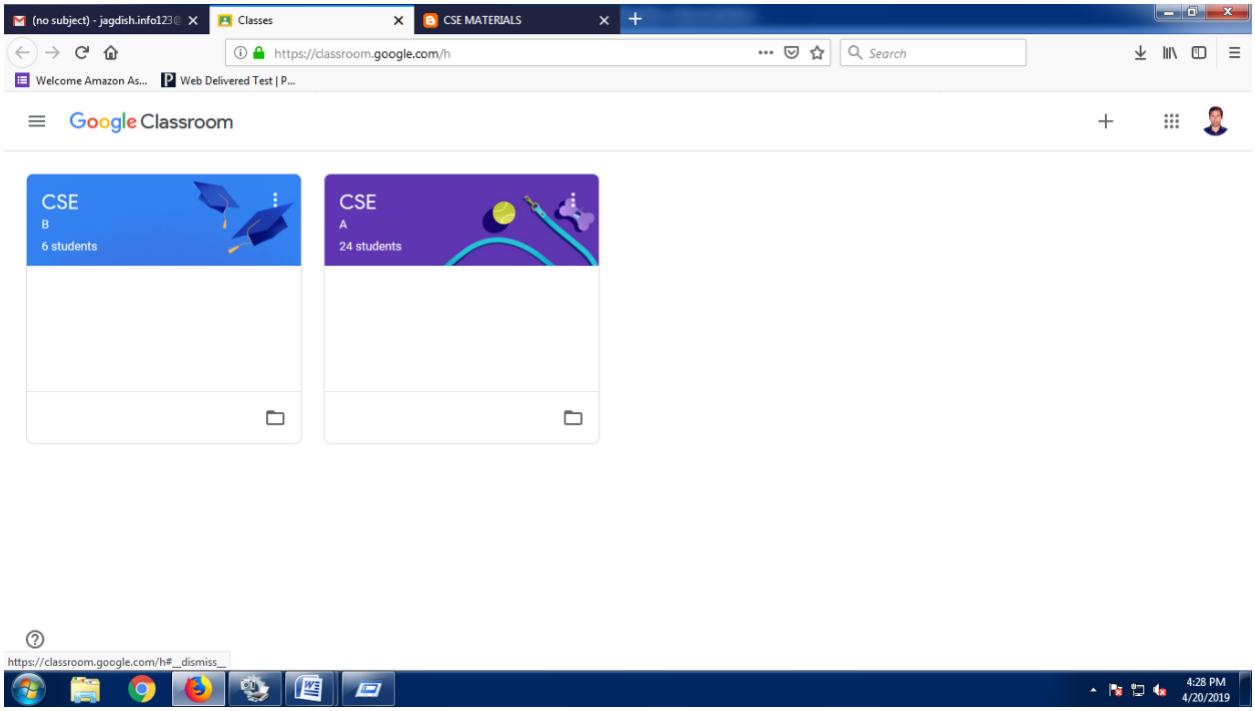
BLOGS

GOOGLE CLASS ROOMS

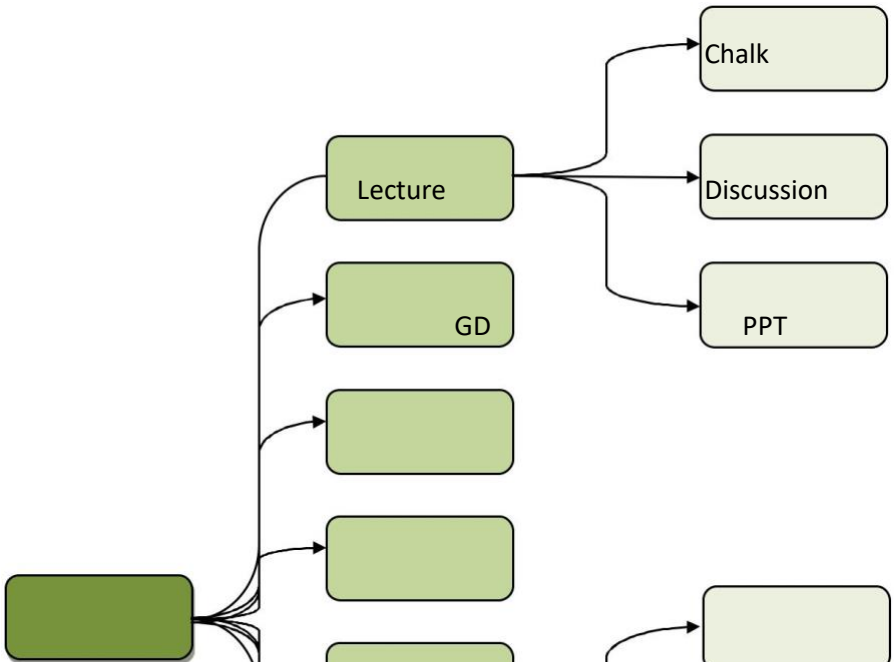


PPT BASED

Table of Contents

1. Introduction to HTML
   - How the Web Works?
   - What is a Web Page?
   - My First HTML Page
   - Basic Tags: Hyperlinks, Images, Formatting
   - Headings and Paragraphs
2. HTML in Details
   - The <!DOCTYPE> Declaration
   - The <head> Section: `Title`, `Meta`, `Script`, `Style`

Instructional Methods and Pedagogies



Guest

Lecture

ICT Supported Learning

- Students are advised to register for MillionLights (Massive Open Online Courses) and watch NPTEL, JNTU e-Learning, and SWAYAM videos and the students are encourage to write assignments. In classroom students are encouraged to give presentations to improve their basic knowledge, communication skills in the respective subject.

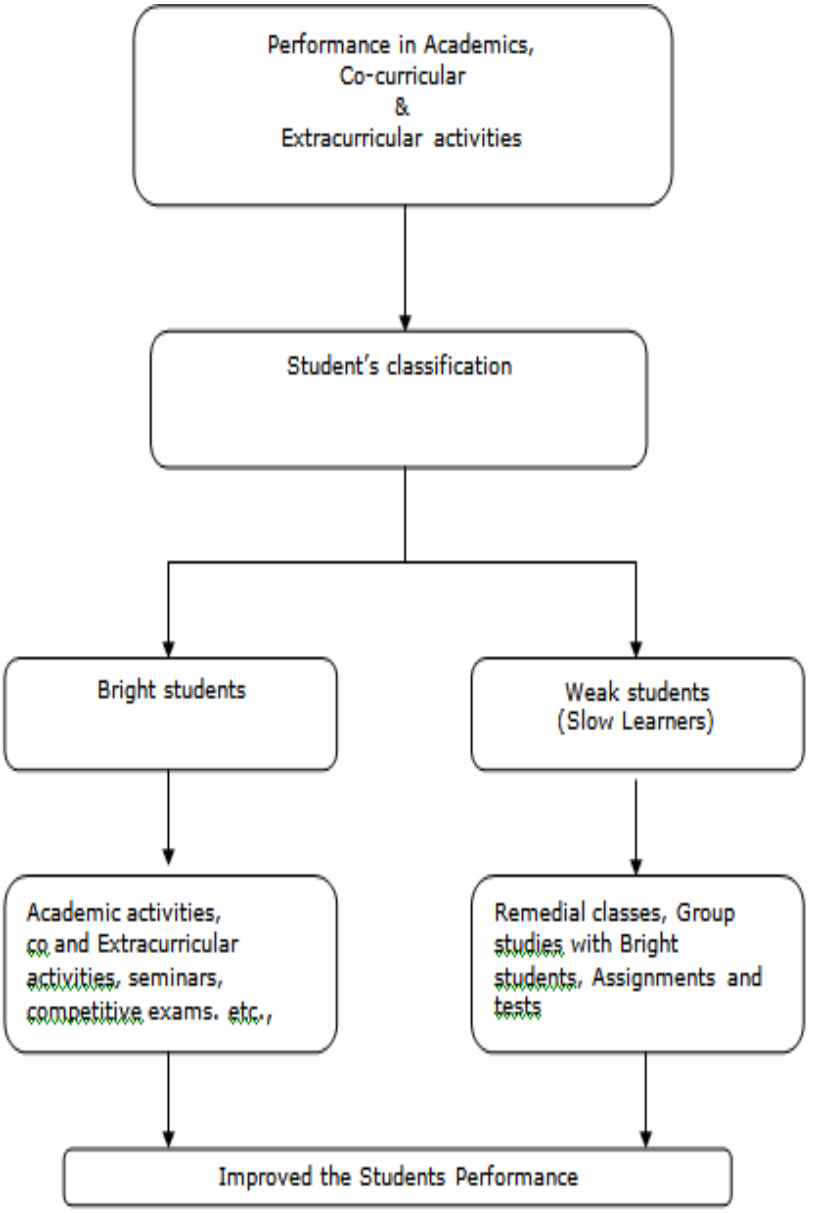
- Friendly interactive software based learning like Blogs, and google class rooms are used for effective learning.

TUTORIAL ROOM

BOARD AND CHALK TEACHING

PROJECTOR BASED

Methodology to identify bright students



Process of identification of students as weak / bright students and support

METHOD TO IDENTIFY WEAK /BRIGHT STUDENTS

The bright students are identified from their active participation in classroom discussion, result performance in the Mid ,External and assessment tests and participation in classroom seminars, questioning ability and University result analysis. Table 2.2.1.4. list some of the bright students.

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

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

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

- Bright students are encouraged to lead the students' association team which organizes various activities viz. paper presentation, poster presentation, lecture series etc.

The performance of a bright student - Yamini S is shown in Figure. 2.2.1.7.

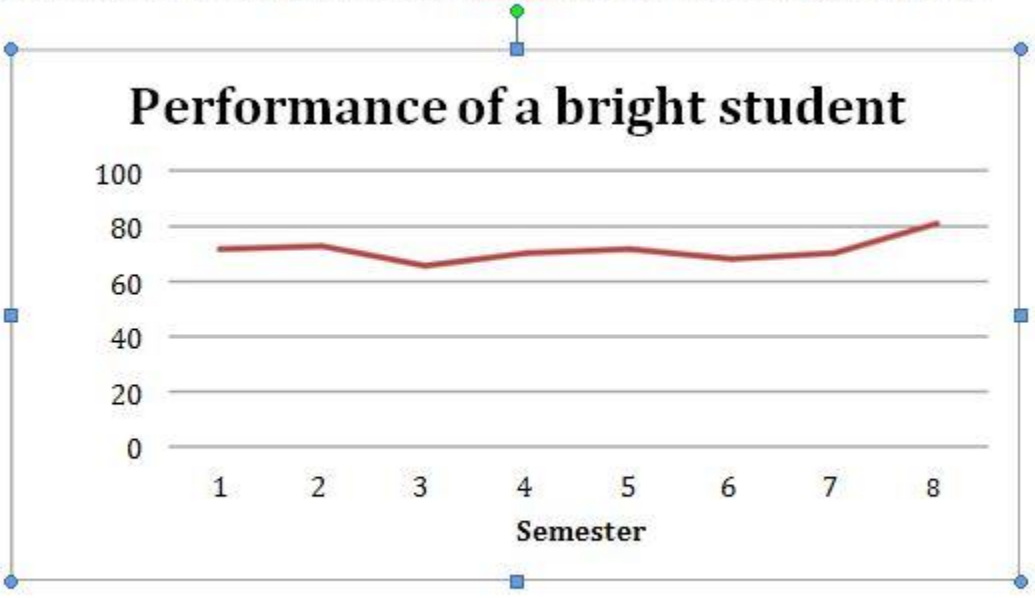


Figure 2.2.1.7. Performance of a bright student (Yamini S)

Methodology to identify weak students:

The weak students are identified from their participation in classroom discussion, performance in the assessment tests (less than 15 out of 25) and University result analysis. The Table 2.2.1.5. lists some of the weak students.

- 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 these students.
- Specially developed online question banks and assignments are given.
- Participative and progressive weak students are given chance to improve team work to motivate and appreciate their efforts.

SNO	STUDENT NAME	HTNO	BATCH

The performance of a bright student - Yamini S is shown in Figure. 2.2.1.7.

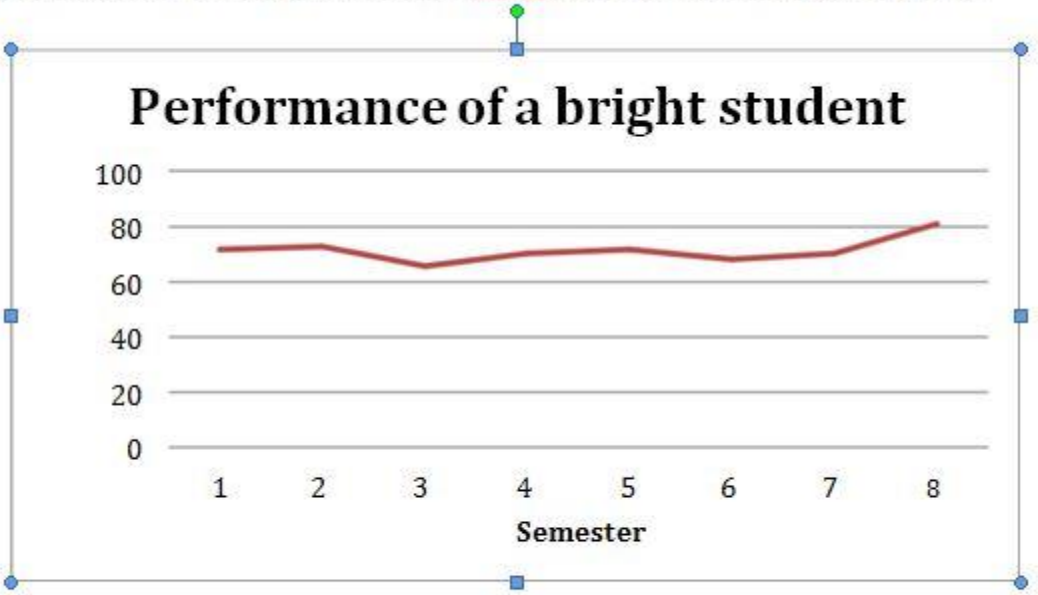


Figure 2.2.1.7. Performance of a bright student (Yamini S)

Classroom Teaching

Each classroom is spacious and equipped with black board and audio visual aids to create an better ambience for effective teaching learning environment.

Each lecture is scheduled for one hour. During the lecture, faculties take efforts to keep students engaged by reviewing and asking 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.

Conduct of Laboratory Experiments

The laboratories are equipped with necessary infrastructure to facilitate effective conduction of the experiments in the laboratory.

For the laboratory sessions, students are asked to bring lab manual, observation book and record book. Students are advised to study the theory behind the experiment and the procedure to conduct the experiment before the lab session. Students conduct the experiments and record the observations in the observation book. After completion of the experiment students are encouraged to discuss the learning from the experiment.

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 2.2.1.6. The average marks of all session will be considered for awarding final internal assessment.
- Figure 2.2.1.9 shows the process for conduction of internal lab examination and finalising the marks. Table 2.2.1.7 lists the rubrics for assessment in Internal Lab Examination.

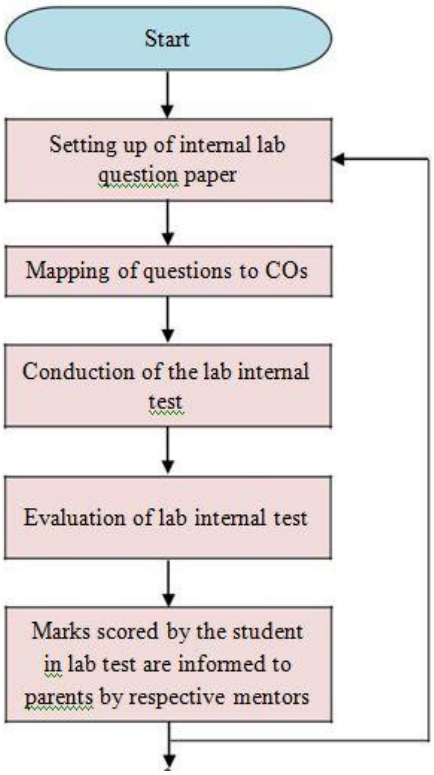
Table 2.2.1.6. Rubrics used for continuous evaluation in every lab session

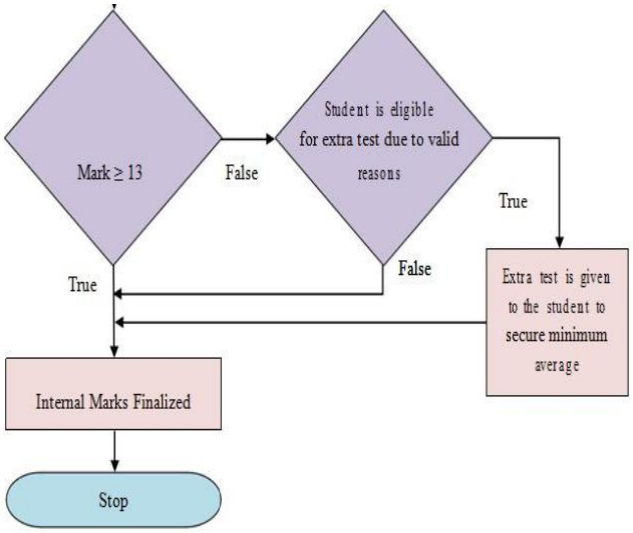
Parameters	Allocated Marks	High	Medium	Low
Conduction	2	Given circuit rigged up, got output/Program executed with output.	Given circuit rigged up with partial output/Given program was partially executed in the lab session.	Given circuit not rigged up/Given program was not executed in the lab session.
		2 Marks	1 Mark	0 Mark
Viva Voce	2	Student answered all the viva voce questions	Student Answered only a few viva voce questions	Student did not answer any viva voce question
		2 Marks	1 Mark	0 Mark
Record writing	6	completed record was submitted	Record was submitted but incomplete	Record was not submitted in the lab session
		4 - 6 Marks	1 - 3 Marks	0 Mark

Table 2.2.1.7. Rubrics used for Evaluation of Internal Lab Examination

Parameters	Allocated Marks	High	Medium	Low
Write up	5	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 - 5 Marks	1 - 2 Marks	0 Mark
Execution	5	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 - 5 Marks	1 - 2 Marks	0 Mark
Viva Voce	5	Student answered all the questions.	Student answered only few question	Student did not answer any question
		3 - 5 Marks	1 - 2 Marks	0 Mark

Figure 2.2.1.9. Flowchart for the conduction of Internal Lab Examination





Student Feedback of Teaching Learning Process and actions taken

- Faculty Feedback Performance for every course is assessed from students with various parameters as defined by the Institution.
  Some of the parameters are:
  - Clarity in explaining the subject
  - Course explained was easy to understand
  - Faculty answers to your queries
  - Coverage of topic/course is on time
  - The concepts were explained with example and others
  - Content quality is relevant and useful

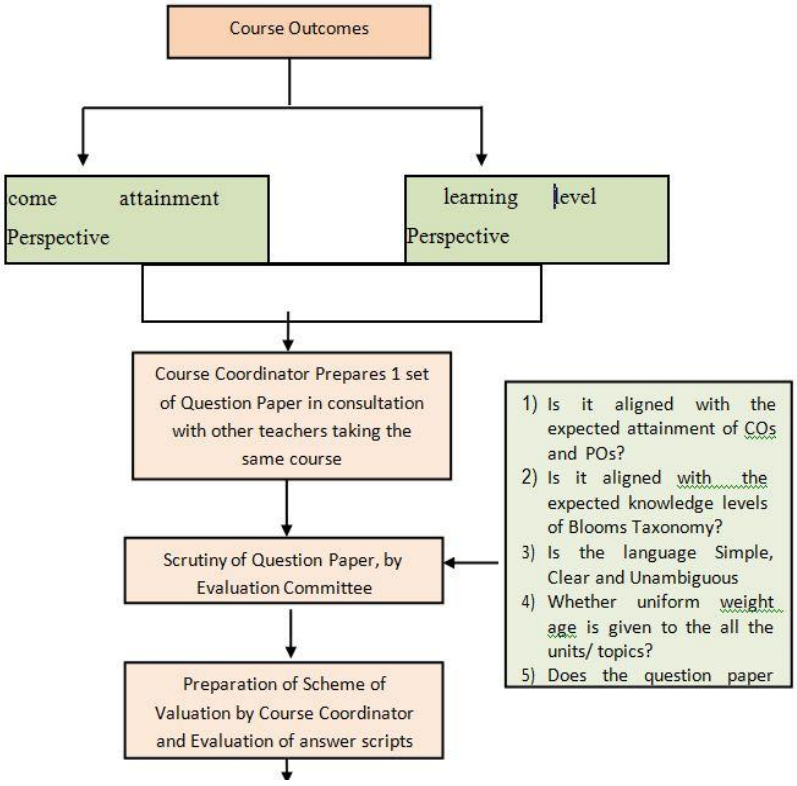
2.2.2. Quality of Internal Semester Question Papers, Assignments and Evaluation

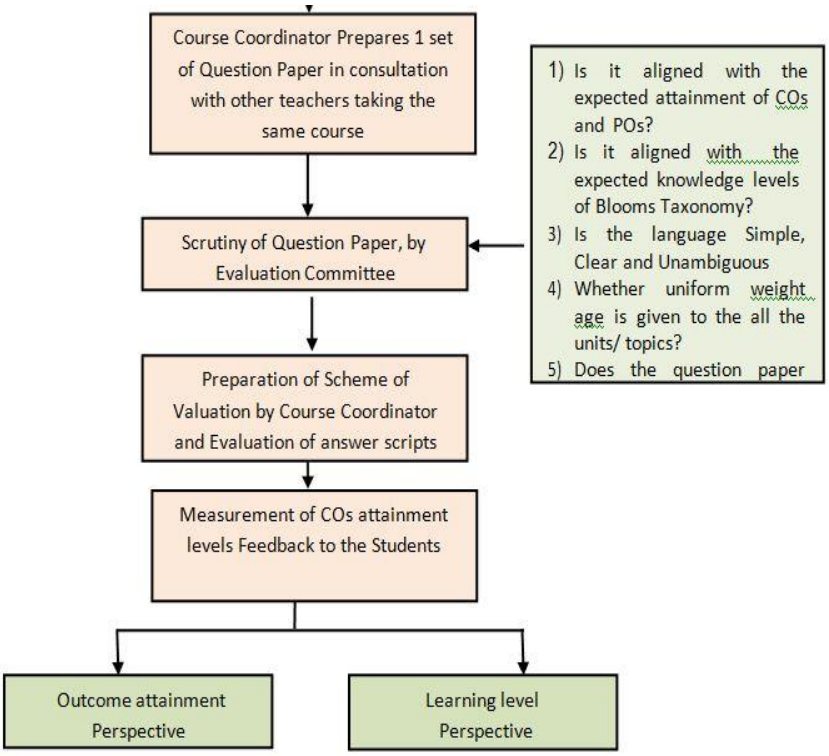
(Mention the initiatives, implementation details and analysis of learning levels related to quality of semester question papers, assignments and evaluation)

Internal Assessment marks set as per JNTUH regulations is 10 for theory subjects, 10 for objective while it is 5 for assignment. The internal assessment marks for theory is

based on questions conducted classes as per the calendar of syllabus. The time table for the same will be announced 2-3 days prior to the commencement of the test. The department has a Scrutinizing Committee, comprising of HoD and two senior faculty members to check the quality of the question paper, BTL levels and COs compliance.

Preparation Internal Question Papers and Evaluation Procedure:





Process for Internal Assessment Test Question Paper Setting:

- The course co-coordinator sets the question paper for the Internal Assessment.
- The course co-coordinator ensures to frame questions based on various BTL levels and are mapped to the Course Outcomes (COs) to assess the students at various BTL levels.

Procedure for Conduction and Evaluation of Internal Assessment Test:

- The time table for the Internal Assessment Test will be announced in the notice board 2-3 days prior to the commencement of the test.
- Department provides blue books for writing the three internal assessment tests and shall be maintained by the Department for at least one year after the announcement of results and available for verification.
- The students write the test in their allotted seats as per their HTNOs in a test hall, under the invigilation of a faculty member.

- The scheme of valuation for the question paper is prepared by the course co-ordinator ensuring appropriate distribution of marks for fair valuation.

- The course co-ordinator valuates the blue books adhering to the scheme of valuation.

- The faculties after every internal assessment test they explain the solution of the questions in the class which will enable them to perform well in the final examination.

- The average of the best two of three internals is the final internal assessment marks.

- For any genuine reasons, if a student was unable to perform well in the given three internal assessment tests, improvement test is given to him/her.

Process to ensure questions from outcomes/learning levels

- The course co-ordinator ensures that the internal assessment questions are framed based on various BTL levels and are mapped to the COs.

- A question paper template is shown in Figure 2.2.2.1.

- The course coordinator decides the number of questions and marks allotted for each question.

- The course coordinator submits the question paper to the scrutinizing committee and the committee checks the quality and BTL level and CO compliance and suggests any changes, if required.