DEPARTMENT OF INFORMATION TECHNOLOGY

Innovations in instructional delivery and methods:

- In addition to chalk and talk, the faculty members are demonstrating with modern tools , Chart work based, Project based learning, Flipped Classs room, Animated Videos, Activity Based teaching, MCQ, Quiz, Crosswords, Analogue, Brainstorming mode of teaching learning process were introduced to handle the Programming, analytical and theoretical subjects like Java Programming, Data Structures, Analog Electronics, Python Programming, DBMS, etc.,
- Concept oriented activities are planned in the classroom with the participation of the students.

Innovations by the Faculty in teaching and learning are summarized as per the following description in the table. The following methods of innovative teaching learning processes were practiced during the course period. Various methods have been adapted by the faculty members to strengthen the teaching learning process and properly recorded for further enhancement and analysis process.

Activity Based Teaching

Sl.No	Item	Description
1.	Usage of Smart Boards	Most of the class rooms are equipped with smart boards which faculty members can use to take TLP process to a higher Level.
2.	Usage of online platforms	Faculty members use Zoom, Google classroom, Edmodo etc. for discussions as well as sharing of course materials.
3.	Usage of Modern Tools	SMART BOARD, LCD Projectors Document Camera, Wireless Keyboard and mouse, Power Point Laser Presenter, Wireless Presenter, USB wireless pen mouse, Slide Changer, Wi-Fi enabled laptops are usually employed in classrooms and other student learning environments.
4.	Academic reinforcementbased on project-basedmode	Every semester student has to complete a mini project as a part of their curriculum and these are evaluated for on spot programming skills by mini project reviewers based on the rubrics.
5.	Semester break Internship	Every semester break, students are advised to go for Internship activities
6.	Reinforcement throughstudent	Learning/Reinforcement of concepts is encouraged

	club activities	through the activities of various student clubs monitored by faculty coordinator.

Teaching Aids Used

Year/Sem	Subject name	Think pair share	In class Teams	Collaborating Learning	Filled Class Room	Group Writing Assignments	ICT mode of Teaching	Chart presentation	Zoom meeting	NPTEL Lectures
II year I sem (R20)	AE	√	√			√	√	√		√
	DS	√		√	√	√	√	√	√	√
	COSM	√		√	√	√	√	√		
	COA	√	√	√		√	√	√	√	√
	OOPS C++	√		√	√	√	√	√	√	√
III year I sem (R20)	WT	√	√	√		√	√	√		√
	DCCN	√	√	√		√	√	√		
	SE					√	√	√	√	√
	PPL	√		√		√	√	√		√
	DBMS	√		√			√	√		√
	AI	√	√	√	√	√	√	√	√	√
	BEFA	√		√		√		√		
IV year I sem(R18)	C&NS	√	√	√	√	√	√	√	√	√
	Data Mining	√	√	√	√	√	√	√		√
	Cloud Computing	√		√		√	√	√	√	√
	Internet Of Tings	√	√	√		√	√	√	√	√
	E-Commerce	√	√			√	√	√	√	
II year II sem(R20)	DM	√	√	√	√	√	√	√		√
	DLD	√	√	√	√	√			√	
	Operating Systems	√	√		√	√	√	√	√	√
	DBMS	√	√	√	√	√	√	√	√	√
	Java Programming	√	√	√	√	√	√	√	√	√
III year IIsem (R20)	Machine Learning	√		√	√	√		√	√	√
	Compiler	√	√	√		√	√	√	√	√

	Design									
	DAA	√	√			√	√	√	√	
	Software Testing Methodologies	√	√	√	√	√	√	√	√	√
	ITE	√	√	√		√		√		√
IV year II sem (R18)	OB	√	√	√		√	√		√	√
	Distributed Systems	√	√	√		√	√		√	√
	ISF	√	√	√		√	√	√	√	

a) Virtual Classroom Supports and Video Conferencing using Zoom Meeting Demonstrative Mode :

Objective:

- The main objective is to increase the quality of Teaching – Learning Processing by incorporating ICT modes like, online classes and webinars.
- Zoom Meeting and Google Classroom that aims to simplify creating virtual classroom, interacting and distributing the materials in a paperless way.
- This practice is to share needy resources between teachers and students.

The Context:

- Virtual Classroom supports and video conferencing using zoom meeting impacts to increase the students learning.
- Teachers can schedule the task dynamically and have the option to attach files to the assignment which students can view, edit, or get an individual copy.
- Students can create their own study materials, Assignment reports and their innovations effectively.
- Teachers have the option to monitor the progress of each student.It allows the students to review the classes, assignments and other tasks for detailed understanding.
- Time Management, Evaluation, Assessment Report generation and remedial process become very easy with these types of ICT modes.

Evidence of Success:

- The method helped all students for referring of syllabus, topics covered, important questions in the theory exam, previous year's question papers etc.
- Students can access it from their home or where ever and whenever they are free.
- Progress will be monitored timely.

b) Digital Poster Presentation By Students :

Objective:

- To cultivate out of box thinking, such as inter-disciplinary thinking, synthesizing knowledge of different disciplines and to cope with complexity among students.
- To ensure the knowledge acquiring among the students community.
- To make them understand the emerging concepts from known concepts.
- To stimulate in-depth learning of the concepts and understanding of various topics.

The Context:

- This event is to provide an opportunity for the students to share their knowledge with the peer group members.
- The digital poster is prepared in advance with desired technical framework to share the knowledge on inter-disciplinary fields.
- This activity will lead to encourage the students to participate in symposia, technical presentation.

The Practice:

- The schedule is prepared and given to the faculty members to prepare and present the acquired
- This presentation is recorded for review and template for the other participants.

Evidence of Success:

Outcome of this practice enables the students to

- Participate in technical presentation
- Conferences
- Project Expo
- Participate in skill oriented competitions

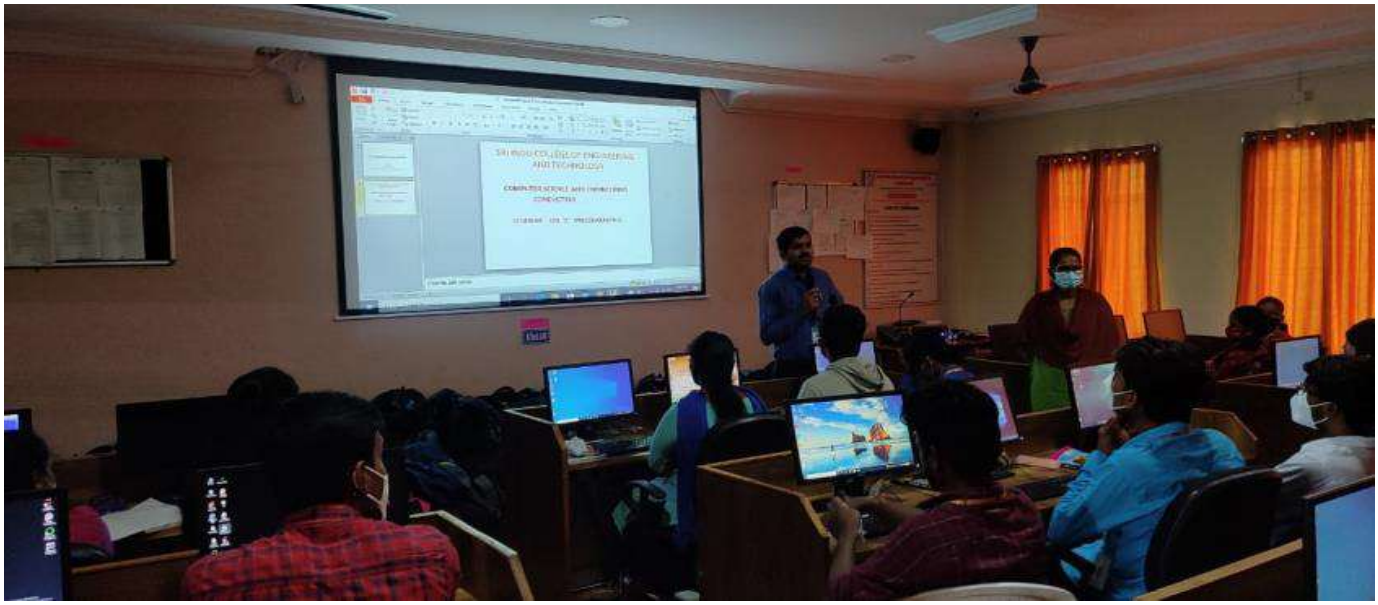
Subject name: Artificial Intelligence
Year: III year I semester

c) Demonstrative Mode

Demonstration is a teaching method used to communicate an idea with the aid of visuals such as flip charts, posters, power point, etc. A demonstration is the process of teaching someone how to make or do something in a step-by-step process. As you show how, you “tell” what you are doing.

To achieve success in demonstration method the teacher need to do three things which are necessary for this method.

- The object displayed for demonstration should visible to all students
- The demonstrator should use clear language and step by step procedure so the students understand the concept of demonstration easily.
- The pupils should be given the chance to ask question from teachers to clear their concept and difficulties about the topic.

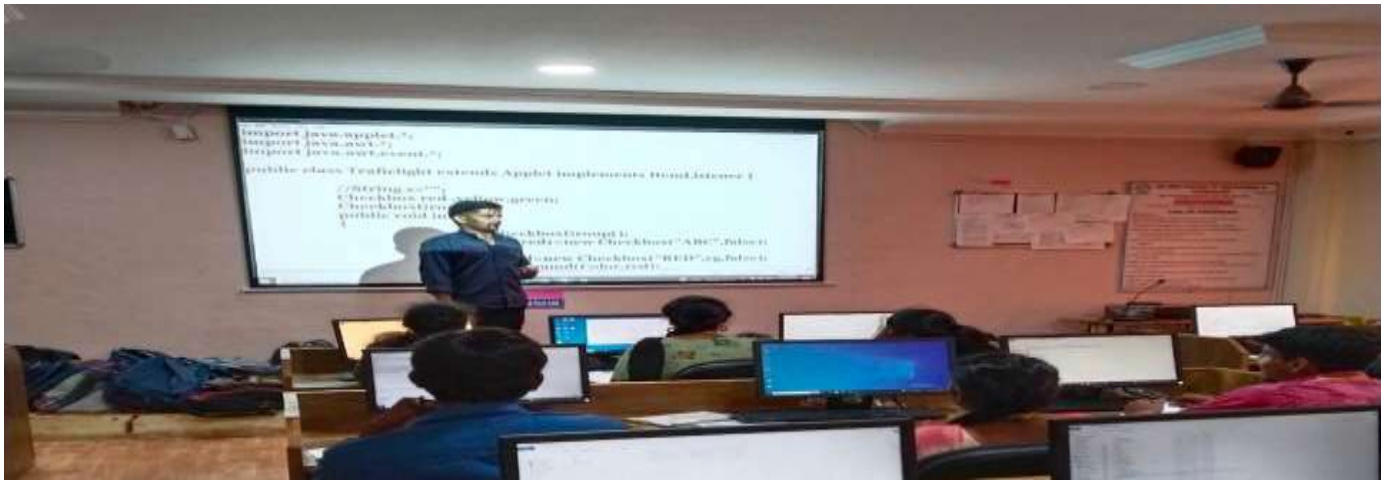


Subject Name: Java Progammimg
Year: II year II semester

d) Experimental Based Teaching

The experimental method is usually taken to be the most scientific of all methods, the 'method of choice'. The main problem with all the non-experimental methods is lack of control over the situation. The experimental method is a means of trying to overcome this problem. The experiment is sometimes described as the cornerstone of psychology: This is partly due to the central role experiments play in many of the physical sciences and also to psychology's historical view of itself as a science. A considerable amount of psychological research uses the experimental method.

An experiment is a study of cause and effect**.** It differs from non-experimental methods in that it involves the deliberate manipulation of one variable, while trying to keep all other variables constant.



Subject name: Java Programming
Year: II year I semester

e) ICT Mode of Teaching-Learning

Information and Communications Technology (ICT) can impact student learning when teachers are digitally literate and understand how to integrate it into curriculum.
Colleges use a diverse set of ICT tools to communicate, create, disseminate, store, and manage information.ICT has also become integral to the teaching-learning interaction, through such approaches as replacing chalkboards with interactive digital whiteboards, using students' own smartphones or other devices for learning during class time, and the "flipped classroom" model where students watch lectures at home on the computer and use classroom time for more interactive exercises.

f)Modern Tools:

"The teaching method which focuses more on teaching the students for improving their intellect behavior by using various new and innovative ideas rather than making them recite the syllabus to clear the examination with the same old style is **Modern Teaching Methods** in simple words."

Advantages of Modern Teaching Methods:

- Unlike traditional teaching methods, modern teaching methods are more interactive and keep students intact. It maintains the interest of students by animations and videos.
- The visual medium is way better than any other medium to give instructions. It helps to memorize the concept fast and for a more extended period than reading.
- Modern teaching methods are less time-consuming. Teachers take less time to cover the syllabus. Writing on the blackboard is not required.
- Blackboard explanation of content is less explanatory than a representation of videos and animations used in the modern teaching methods.

g) Think pair Share

Introduction:

Collaborativelearningisaninstructionalmethodinwhichstudent'steamtogetheronanassignment. In this method, students can produce the individual parts of a larger assignmentindividually and then "assemble" the final work together, as a team. Whether for a semester-long project with several outcomes or a single question during class, collaborative learning canvarygreatlyinscopeandobjectives.Cooperativelearning,sometimesconfusedwithcollaborative learning, describes amethod where students work together in small groups on astructured activity. Students are individually accountable for their work but also for the work ofthegroupasawhole, andboth productsareassessed.

NameoftheFaculty:Dr.S.KishoreVerma	**Designation**:Assoc.Prof	**Subject:**Machine Learning
Year/Semester: III/II	**Dept**:IT	**Topic:**Decision Tree
Nameoftheactivity: Think-PairShare	**Date: 18-04-2022**	**No.of students attended**:24

Objective of the activity:

To discuss the various functions of the decision tree and its functions.

- To understand how to construct the decision tree
- To make students understand complex concepts.
- To develop oral communication skills, Fosters and develops interpersonal relationships.

Execution Plan:

- Given higher-level questions about the topic to the students
- Gave sometime for thinking the answer for questions
- Now formed teams of team size2
- Gave sometime to share the ideas themselves
- They shared their ideas to whole class
- Finally 80% of the groups have completed the task successfully

Expected Outcomes:

The students can be able to

- Generate valid routings and invalid routings
- Analyze the different types of maintenance checks and maintenance hub
- Develops higher level thinking skills
- Builds self esteem in students

h) In-ClassTeams

Introduction:

In Class Teams is anything course-related that all students in a class session are required to do, other than simply watching, listening and taking notes. Active Learning shifts focus from what the instructor should deliver to what the students should be able to do. Compared to students taught traditionally, students taught in a manner that incorporates small-group learning achieve higher grades, learn at a deeper level, retain information longer, are less likely to drop out of school, acquire greater communication and teamwork skills, and gain a better understanding of the environment in which they will be working as professionals.

NameoftheFaculty: S. Varsha Reddy	**Designation**:Asst.Prof	**Subject:DCCN**
Year/Semester:III/I	**Dept**:IT	**Topic:** TCP/IP
Name of the activity: In Class Teams PeerEvaluation	**Date:21-08-2021**	**No.ofstudentsattended**:45

Objective of the activity:

1. Students will have an opportunity to discuss the concept of CSMA/CD team effectively.
2. To understand the concept of IEEE 802.11
3. To demonstrate the concept of domain name space.

Execution Plan:

Timemanagement:Class time:40min

a. Summarized the TCP/IP concepts 03min
b. Creating team with 4-6size 01 min.
c. Distribution or announcementof Questions 02min.
d. Studentas brainstorms and solvingbyy team 10min.
e. Student Should solve final question 04min

Expected Outcomes:

The students can be able to

- Students can express their views and share knowledge
- It's an interactive session and teamwork.
- Students can gain more knowledge and improves the critical thinking on the concept

Assessment:

1. Assessment is carried out by peer evaluation.

The activity was reached 85% of the groups have completed the task successfully, the activity can be considered as successful.

i) FlippedClassroom:

Introduction:

Instructional environments that allow for students to be more actively engaged with course material are more likely to lead to greater learning gains. The literature in engineering and science education continues to encourage faculty and instructors to use class exercises that require students to be actively engaged in the course material, as opposed to being passive recipients of information.

Engineering students benefit from an active and interactive classroom environment where they can be guided through the problem solving process. Typically faculty members spend class time presenting the technical content required to solve problems, leaving students to apply this knowledge and problem solve on their own at home. There has recently been a surge of the flipped, or inverted, classroom where the technical content is delivered via online videos before class. Students then come to class prepared to actively apply this knowledge to solve problems or do other activities. In this paper, recommendations are made for applying this educational technique to large engineering classrooms.

Name of the Faculty: Sheik Sakeel	**Designation:**Asst.Prof	**Subject:** Data Structures
Year/Semester:II/I	**Dept**:IT	**Topic:** Binary Search Tree
Name of the activity: Flipped Class Room	**Date:**9th Oct2021	**No.ofstudents attended:**48

Objectiveoftheactivity:

- Inorder to motivate the students to learn the concepts thoroughly.
- Student learns the theories from the videos, can use the theories for discussions and assignments in class.

ExecutionPlan:

Time management:Class time: 20mins

a. Students are provided with the learning material (Video Link, text book page numbers) of the topic to be covered and a time of 4days for their preparation for the activity.
b. On the day of implementation of activity topics are given as per their seating in the class (it was observed students in a same desk are writing different topics) and 20 minutes is given to think and write about the topic.
c. After 20minutes the scripts were collected in chronological order (rollnumber).

Planof action:

Students were asked to go through the learning material and 2day's time was given for preparation. Every individual will be given a different question or numerical as per higher looms level and time of 15minutes is given to complete the task.

Expected Outcomes:

It's be easier to get the points from videos than from lecture notes.

1. This method makes the subject more engaging than the regular method.
2. The flipped classroom method will increase the knowledge and understanding of the course area.

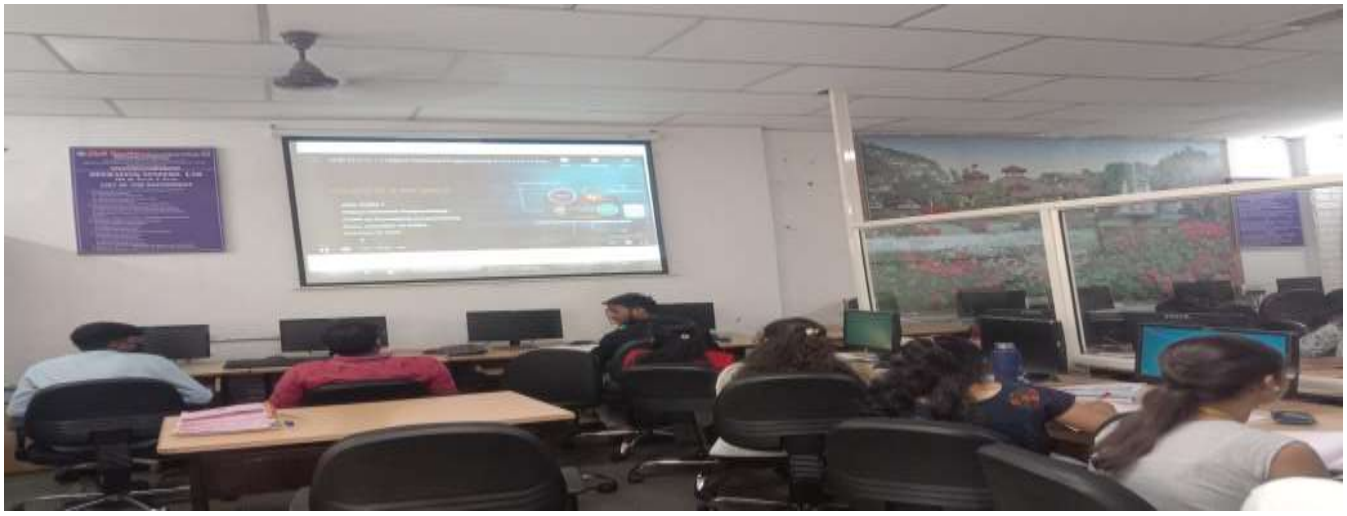
j) Group Writing Assignments

It would be truly surprising to find an author whose writing, even if it was completed independently, had not been influenced at some point by discussions with friends or colleagues. The range of possible collaboration varies from a group of co-authors who go through each portion of the writing process together, writing as a group with one voice, to a group with a primary author who does the majority of the work and then receives comments or edits from the co-author.

k) NPTEL Lectures:

- To promote self-learning and share knowledge among students.
- To enhance the quality of engineering education and resources for beyond curriculum.

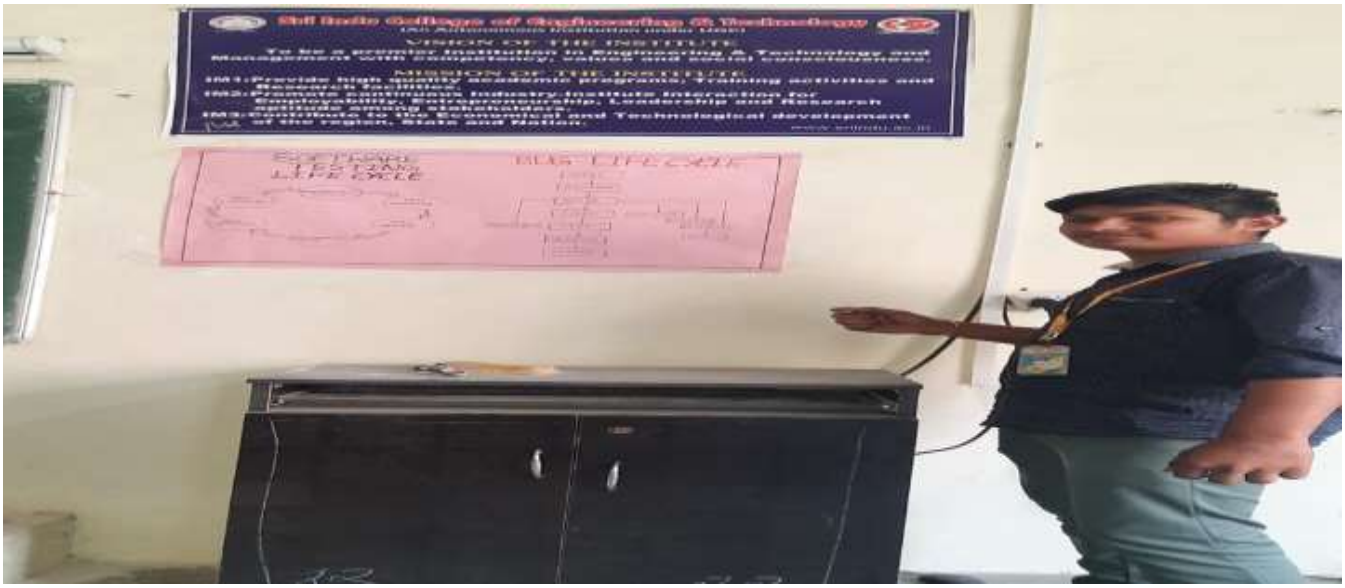
Subject name: Complier Design
Year: III year II semester



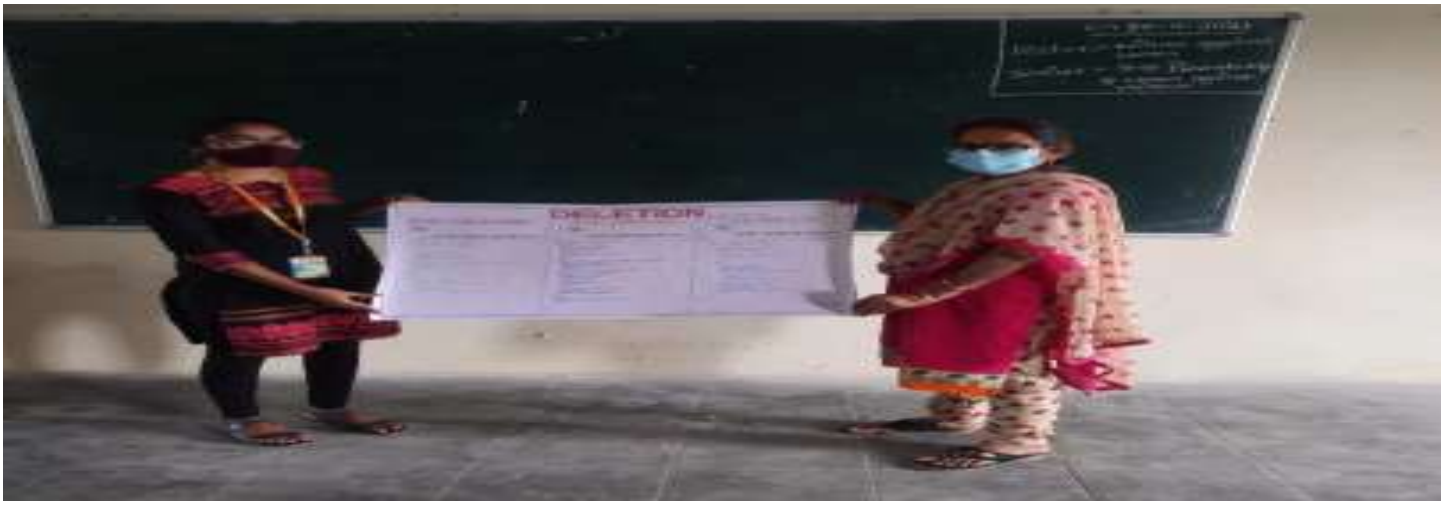
Subject name: OOPs Using C++
Year: II year I semester

l) Chart Work Presentation:

A common, effective teaching method is to use visual presentations in a classroom. Charts and diagrams are especially helpful, as they enable students to see ideas visually laid out in an organized way. Also, visual tools can help the students process content and to make connections more easily. Teachers can purchase or make charts to display around the room, or create a chart as part of a lesson. These tools are especially useful in elementary school, where children tend to have shorter attention spans.



Subject Name: Software Engineering
Year: III year I semester



Subject Name: Data Structure

Year: II year I semester

m) Animation Video of Lecture:

Animation occurs when images, drawings, or pictures are placed and played in sequence to create an illusion of movement. The use of animation in education is increasing in popularity with new trends in education. The fact that it eases the learning of complex concepts contributes to making it a popular choice among educators and learners. Animation brings learning to life and applies to nearly all subjects. Consequently, this allows educators to explain different concepts with the help of visual representations. Also, it is a fun learning approach that promotes experiential learning.

Subject name: Machine Learning
Year: III year II semester

n) Group Discursion:

A group discussion tests the teamwork and communication skills of candidates. A group discussion involves a discussion on a given topic with other candidates, usually with similar experience and educational qualifications. Performing well in a group discussion helps you to get noticed and practicing for one improves your public speaking skills.

Subject name: Artificial Intelligence semester

Year: III year I semester

Subject name: Internet of things Year: IV year I