**SVKM's Institute of Technology, Dhule**
**Department of Computer Engineering**
**Academic Year :2023-24**
**Pedagogy : Innovative Practices**

| Sr. No | Name of faculty | Innovative Practice | Subject | Topic |
|---|---|---|---|---|
| 1 | Bhushan Nandwalkar | Virtual Lab | Database Systems | ER modeling from problem statement |
| 2 | Mayuri Kulkarni | Virtual Lab | Software Engineering Lab | Non Functional & Functional Requriments |
| 3 | Rinku Sharma | Flip Class Room | OOP | Concept of Array |
| 4 | Pranshant Gawade | Problem Solving Session | Engineering Mathematics III | Application of Laplace Transform to Solve Differential Equation |
| 5 | Ashish Awate | BrainStorming | Design Thinking | Empathy and Persona |
| 6 | Umakant Mandawkar | Mind-games | Discrete Mathematics | The Bridges of Königsberg |
| 7 | Khalid Alfatmi | Virtual Labs | Data Structutres Lab | Linked List Operations |
| 8 | Khalid Alfatmi | Virtual Labs | Data Structutres Lab | Binary Search Tree Operation |
| 9 | Kiran Somawanshi | Virtual Lab | Economics & Management | Money Management |
| 10 | Umakant Mandawkar | Crossword Puzzle | Big Data Analytics | Big Data Analtyics Jargons |
| 11 | Ashish Awate | Crossword Puzzle | Theory of Computation | Automata and its Properties |
| 12 | Chandu Koli | Competition Based Learning | Numerical Intergation | Numerical Integration |
| 13 | Rinku Sharma | Simulation | Blockchain Technology | Basics of Blockchain |
| 14 | Kiran Somwanshi | Online Platforms demonstration | Cloud Computing | Amazon Web Services |
| 15 | Dr. Rajiv Junne | Brainstorming Session | Business Communication | Role of Intercultural Communication at Workplace |
| 16 | Ashish Awate | Crossword Puzzle | Machine Learning | Machine Learning Jargons |
| 17 | Ashish Awate | Crossword Puzzle | Machine Learning | Machine Learning Jargons |
| 18 | Khalid Alfatmi | BrainStorming | UHV-II | Self-Exploration,Prevention of Food Wastage |
| 19 | Mangesh Balpande | Group Discussion | Employability and Skill Development | |
| 20 | Kiran Somwanshi | Online Platforms demonstration | Compiler Design | Top Down Parser /Predective Parser |
| 21 | Amirkhan Pinjari | BRAIN STORMING | Constitution of India | |
| 22 | Mayuri Kulkarni | Animation | Internet of Things | MQTT |
| 23 | Dr Makarand Shahade | Role Play | Operating System | CPU Scheduling Algorithms |

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# Institute of Technology, Dhule

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## DEPARTMENT OF COMPUTER ENGINEERING

A.Y 2023-24

| | | |
|---|---|---|
| **Name of Event** | : | **INNOVATIVE PRACTICES** |
| **Dates** | : | **13th August 2023** |
| **Time** | : | **03:00 pm** |
| **Venue** | : | **Computer Center** |
| **Course Code & Title** | : | **BTCOC501 Database Systems** |
| **Learning Strategy** | : | **Virtual Lab (IITKGP)** |
| **Topic** | : | **ER modeling from problem statement** |

**Virtual Lab:**

Virtual labs offers students access to a realistic lab experience that will allow them to perform experiments and practice their skills in a risk-free and interactive learning environment.

**Benefit of the Virtual Lab:**

- Virtual computer labs provide students with unrestricted access to resources, software, and applications round the clock.
- Virtual labs offer a personalized and interactive learning environment. Students can experiment with various software configurations.
- Virtual labs eliminate the need for redundant software installations on multiple machines. This optimizes resource allocation, ensuring that software licenses are utilized efficiently and reducing software procurement costs.
- In science, technology, engineering, and mathematics (STEM) fields, virtual labs offer realistic simulations and experiments. Students can manipulate variables, observe outcomes, and hone their analytical skills in a controlled digital environment.

**Course Outcome:**

**CO1** : To Identify the basic database management system concepts and entity relationship model.

**Goal:**

The students will be able to understand ER model designing on virtual lab.

**Reason for choosing the particular topic (Method):**
Virtual labs helps the students to simulate the problem statement to ER model and then understand the entities and their relations between them so that students can apply constraints on tables and create these tables using SQL.

**How we implemented Virtual Labs:**

- The faculty has discussed the concept of ER diagram and their symbols. Also explain how to read problem statements and find the required entities as per the problem statement the previous day.
- Faculty ask students in lab and explain the virtual lab portal and give overview of ER diagram.
- After overview of ER diagram, students read the theory of ER diagram from virtual ab portal.
- Later on students read the given problem statement and start the simulation for given problem statement. (Given problem statement is based on school management system).
- Later on students solve the given "Self Evaluation" Test and posttest on Single source shortest path algorithm.

**Committee Members:** Prof. Bhushan Nandwalkar, Coordinator

Dr. Makarand Shahade Convener

**Total No. of Student Benefited:**

56 students participated from T.Y. B. Tech Computer Engineering Department.

**Learning Outcomes of Activity:**
The students were able to Single source shortest path algorithm.

**Pre-implementation Reflection:**

- Few students are get difficulties to draw ER diagram.

**Post Implementation reflection:**

- Students were able to draw ER diagram and find the proper relations and constraints.
- All the students enjoyed the Virtual Lab
- Students' feedback reflected that they have understood the concept.

| Learning Outcomes/ Program Outcomes | PO1 | PO2 | PO3 | PO5 | PO12 | PSO1 | PSO2 |
|---|---|---|---|---|---|---|---|
| *LO1:* To Identify the basic database management system concepts and entity relationship model. | 1 | 1 | 2 | 1 | 1 | 1 | 2 |

POs Mapped: PO1, PO2, PO3, PO12, PSO1, PSO2

**JUSTIFICATION FOR MAPPING**

| PO/PSO MAPPED | JUSTIFICATION |
|---|---|
| PO1 | The basic engineering knowledge help to classify ER diagram |
| PO2 | Student will **identify** the entities from the problem statement |
| PO3 | Students will be able draw the ER Diagram |
| PO5 | Using modern tool students can draw ER diaram |
| PO12 | The problem-solving skill earned through this activity helps the students in motivating lifelong learning. |
| PSO1 | Student ability to design the ER diagram fro given problem statement. |
| PSO2 | Students will provide the solution to Single source shortest path algorithm **problems by applying Dijkstra's algorithm** |

PO Attainment:

Rubrics for Attainment:

| Attainment Level | Description |
|---|---|
| Level 1 : Low | 60% of students scoring more than set attainment level in the Poll. |
| Level 2 : Medium | 70% of students scoring more than set attainment level in the Poll. |
| Level 3 : High | 80% of students scoring more than set attainment level in the Poll. |

**Overall Attainment: Level 3(high)**

**PO's attained:** PO1, PO2, PO3, PO5, PO12, PSO1, and PSO2

**References https: http://vlabs.iitkgp.ac.in/se/4/**

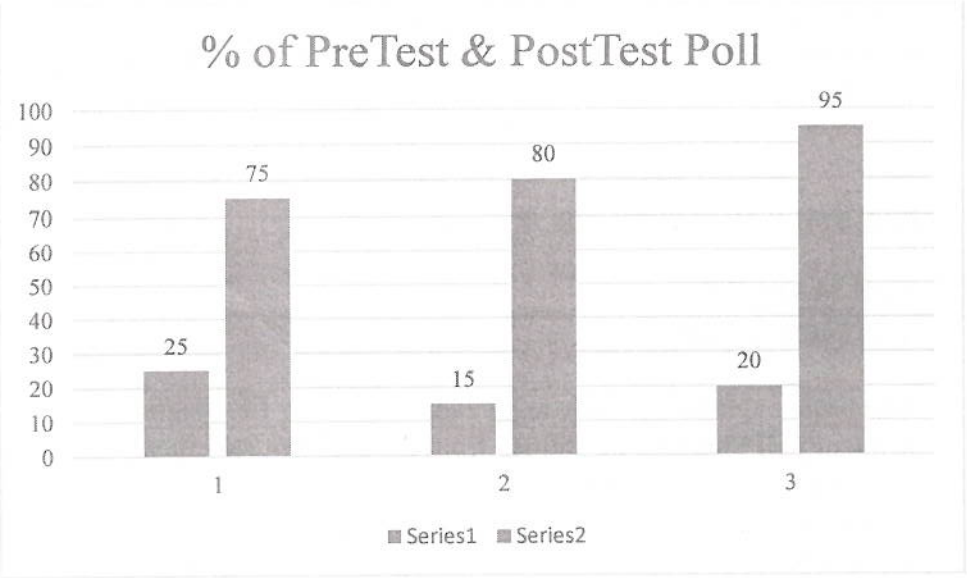


**Fig. PreTest and PostTest Poll Before & After of Event**

**Prof. Bhushan Nandwalkar**
**Event Coordinator**

**Dr. Makarand Shahade**
**HOD, Computer Engineering**

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Shri Vile Parle Kelavani Mandal's

# Institute of Technology, Dhule

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**DEPARTMENT OF COMPUTER ENGINEERING**

**A.Y 2023-24**

| | | |
|---|---|---|
| **Name of Event** | : | **INNOVATIVE PRACTICES** |
| **Dates** | : | **07-10th Aug 2023** |
| **Time** | : | **03:00 to 05:00 pm** |
| **Venue** | : | **Computer Lab 4** |
| **Course Code & Title** | : | **BTCOL506 & Software Engineering Lab** |
| **Learning Strategy** | : | **Virtual Lab** |

**Virtual Labs:**

Virtual labs are interactive simulations that enables students to perform many experiments that are difficult to perform. This allows students to access laboratory experiences from anywhere without any difficulty.

**Objectives:**

- The objective is to provide complete learning management system through various tools for learning.
- To impart knowledge on Software Engineering and UML in an interactive manner through web.
- To demonstrate the practical applications of different concepts.

- **Activity Details:**
  - The requirement and its characteristics are explained to the students.
  - Later explained the concept of functional and non-functional requirements.
  - Explained the problem on "Library Information System".
  - Shown the demonstration through Simulator.

**Total No. of Student Benefited:**

65 students participated from B. Tech Computer Engineering Department.

**Learning Outcomes of Activity:**

The students were able to understand importance of requirement engineering as functional and non-functional requirements.

**Pre-implementation Reflection:**

- Some students were unable to understand functional and non-function requirements.

**Post Implementation reflection:**

- Students will be able to identify requirements for the given problem
- Students will be able to identify and state functional requirements
- Students will be able to identify and state non-functional requirements

POs Mapped: PO1,PO2,PO3, PO10,PO11,PO12,PSO1,PSO2,PSO3

**JUSTIFICATION FOR MAPPING**

| Learning Outcomes/ Program Outcomes | PO1 | PO2 | PO12 | PSO1 | PSO2 | PSO3 |
|---|---|---|---|---|---|---|
| ELO1 ***Find functional and non-functional requirements for a given problem statement*** | 2 | 3 | 1 | 2 | 2 | 1 |

| PO/PSO MAPPED | JUSTIFICATION |
|---|---|
| PO1 | Apply the knowledge of Software Engineering to the solution of complex engineering problems. |
| PO2 | Analyze complex engineering problems reaching substantiated conclusions using Software engineering principles. |
| PO12 | Ability to engage in independent and life-long learning in the broadest context of functional and Non-functional Requirements. |
| PSO1 | To Analysis and develop the ability to prepare SRS using principles of Software Engineering |
| PSO2 | Applying Software requirements elicitation strategy for electing requirements from SRS. |
| PSO3 | Apply Modern computer tools in elicitation for software requirements. |

PO Attainment:

Rubrics for Attainment:

| Attainment Level | Description |
|---|---|
| Level 1 : Low | 60% of students scoring more than set attainment level in the Poll. |
| Level 2 : Medium | 70% of students scoring more than set attainment level in the Poll. |
| Level 3 : High | 80% of students scoring more than set attainment level in the Poll. |

**Overall Attainment: Level 3(high)**

**PO's Attained:** PO1,PO2,PO5,PO12,PSO1

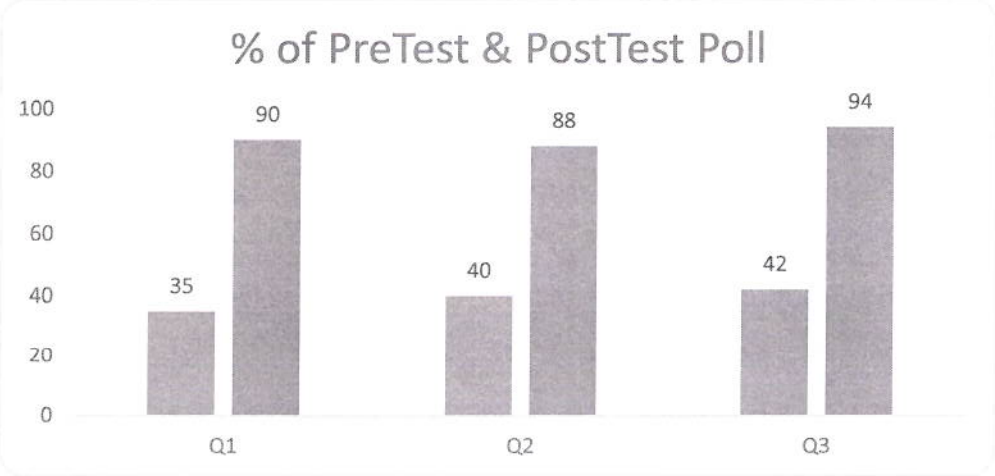
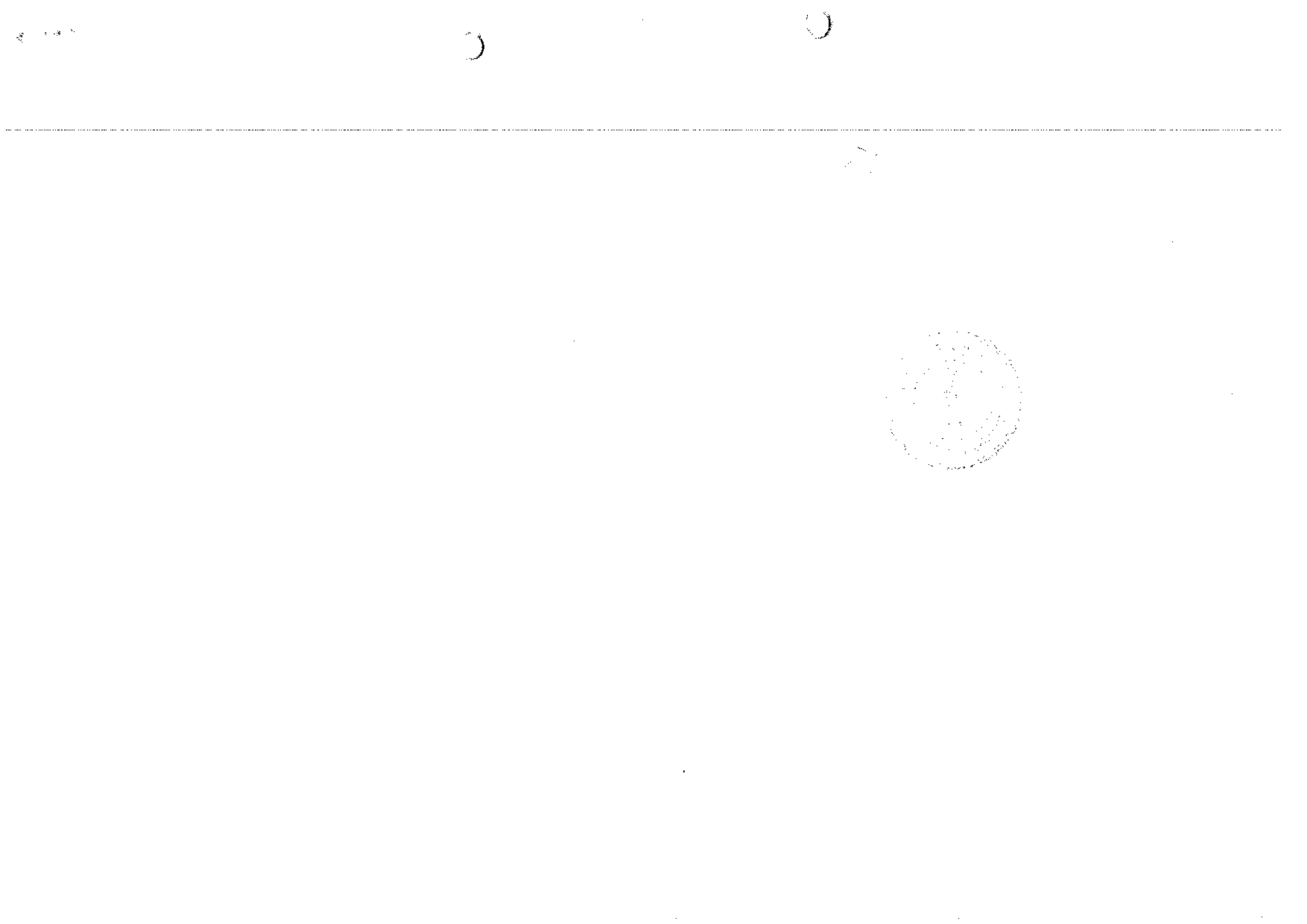



**Fig. PreTest and PostTest Poll Before & After of Event**

**Prof. Mayuri Kulkarni**
**Event Coordinator**

Shri Vile Parle Kelavani Mandal's Institute of Technology DHULE

**Dr. Makarand Shahade**
**HOD, Computer Engineering**



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Shri Vile Parle Kelavani Mandal's

# Institute of Technology, Dhule

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## DEPARTMENT OF COMPUTER ENGINEERING

A.Y 2023-24

| | | |
|---|---|---|
| **Name of Event** | : | **INNOVATIVE PRACTICES** |
| **Dates** | : | **25th August 2023** |
| **Time** | : | **05:00 pm** |
| **Venue** | : | **Class room : 208** |
| **Course Code & Title** | : | **BTCOC305 & Object Oriented Programming in C++** |
| **Learning Strategy** | : | **Flip Class Room** |
| **Topic** | : | **Concept of Array** |

**Flip Class Room:**

A flipped classroom is an instructional strategy and a type of blended learning, which aims to increase student engagement and learning by having learners complete readings or watching instructional material at home and work on live problem-solving during class time. This pedagogical style moves activities, including those that may have traditionally been considered homework, into the classroom. With a flipped classroom, students watch online lectures, collaborate in online discussions, or carry out research at home, while actively engaging concepts in the classroom, with a mentor's guidance.

**The benefit of the Flip Class Room:**

- Instructors spend less time on introducing new topics.
- Learners develop Independent Learning Skills.
- Instructor can create more Engaging Lessons.
- Instructors can Re-use the content they create.
- Learners are able to build a deeper understanding.
- Learners find classroom time more interesting.

**Goal:**

The flipped learning model deliberately shifts instruction to a learner-centered approach, where in-class time is dedicated to exploring topics in greater depth and creating rich learning opportunities

**Reason for choosing the particular topic (Method):**
The sample topics selected under the flip classroom as Array programming to convery the programming related to C++.

**How we implemented Flip Class Room:**

- Shared Short video link on MS Teams Platform.
- This preclass content engages to the point ,allowing students to grasp the fundamentals of before class.
- Provided additional resource as Online Complier instructional material for deeper understanding.
- During lecture conduction ,moved beyond as given the about the programming on the same topic which was unsolved in the provided video and instructional material.
- This activity focused on the application of the concept to solve the problem which enhances the skills as analysis.
- As the learners were solving the problems provided time to time instructions.

**Committee Members:** Prof. Rinku Sharma, Coordinator
Dr. Makarand Shahade, Convener

**Total No. of Student Benefited:**

69 students participated from the Second Year B. Tech Computer Engineering Department.

**Learning Outcomes of Activity:**
The students were able to improve their programming skills on array programming.

**Pre-implementation Reflection:**

- Students just might not have the necessary knowledge to complete flip class room activity.

**Post Implementation reflection:**

- Students found that video lecture provided on topic enhance their learning skills.
- Students were able to identify and apply the working of array.
- All the students enjoyed the activity.
- Students' feedback reflected that they have understood the concept.

| Learning Outcomes/ Program Outcomes | PO1 | PO2 | PO3 | PO4 | PO5 | PO12 | PSO 1 | PSO 2 | PSO 3 |
|---|---|---|---|---|---|---|---|---|---|
| *LO4:* The students will be able to do the coding and understand the concepts more precisely. | 2 | 2 | 1 | 1 | 1 | 2 | 1 | 2 | 2 |

POs Mapped: PO1, PO2, PO3, PO4, PO5, PO12, PSO1, PSO2,PSO3

**JUSTIFICATION FOR MAPPING**

| PO/PSO MAPPED | JUSTIFICATION |
|---|---|
| PO1 | The students were able to understand the basic fundamental of objects, classes , methods , Strings |
| PO2 | The students can able to analyze complex problem statements with the appropriate solution . |
| PO3 | The students can easily provide the solution for real time problems using class, object , operators with returning of objects |
| PO4 | The students can do the analysis and interpretation of data, and synthesis of the problem statement to provide the solution through the coding. |
| PO5 | The students can used the online compiler for the coding of the problem statements through the understanding of the concepts. |
| PO12 | The students can have the lifelong learning with the OOP in C++ concepts. |
| PSO1 | The students can develop an ability to understand and analyze the concept of object oriented programming and their utility in the field of Computer Algorithmic, Web Development, Data Science, Computer Network and Security, Software Design, System Software Cloud Computing and allied fields. |
| PSO2 | The students can develop the ability to provide computer based solution for the real-world problems by applying standard practices, problem solving strategies and methodologies through different features of Object Oriented Methodology with templates, exception handling etc. |
| PSO3 | The students can develop the ability to employ modern computer tools and technologies using different features of Object Oriented Methodology with templates, exception handling etc.in creating innovative career path. |

PO Attainment:

Rubrics for Attainment:

| Attainment Level | Description |
|---|---|
| Level 1 : Low | 60% of students scoring more than set attainment level in the Poll. |
| Level 2 : Medium | 70% of students scoring more than set attainment level in the Poll. |
| Level 3 : High | 80% of students scoring more than set attainment level in the Poll. |

**Overall Attainment: Level 3(high)**

**PO's Attained:** PO1, PO2, PO3, PO4, PO5, PO12, PSO1, PSO2,PSO3

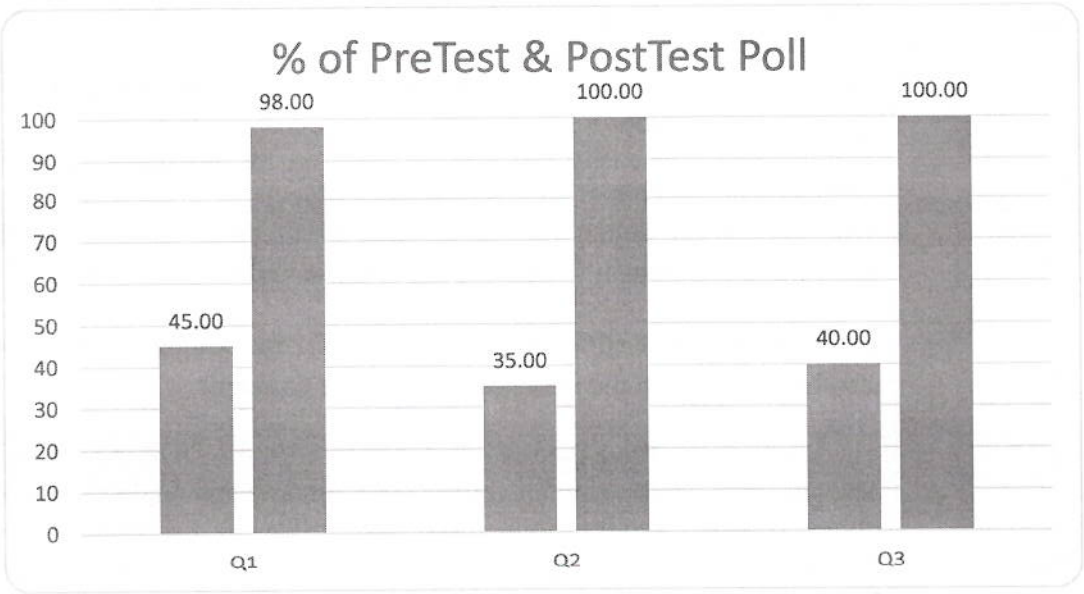


**Fig. PreTest and PostTest Poll Before & After of Flip Class Room**

**Prof. Rinku Sharma**
**Event Coordinator**

**Dr. Makarand Shahade**
**HOD, Computer Engineering**

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Shree Vile Parle Kelavani Mandal's

# Institute of Technology, Dhule

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**DEPARTMENT OF COMPUTER ENGINEERING**

**A.Y 2023-24**

| | | |
|---|---|---|
| **Name of Event** | : | **INNOVATIVE PRACTICES** |
| **Dates** | : | **06/09/2023** |
| **Time** | : | **05:00 pm** |
| **Venue** | : | **Class room : 208** |
| **Course Code & Title** | : | **BTBS301 Engineering Mathematics III** |
| **Learning Strategy** | : | **Problem Solving session.** |
| **Topic** | : | **Application of Laplace transform to solve differential equations** |

Problem solving session.

Engaging in problem-solving sessions encourages students to think critically, analyze situations, and evaluate different solutions. This enhances their ability to think logically and make informed decisions.

Benefits of Problem solving session.

- Problem-solving activities urge students to think critically, assess circumstances, and compare alternative answers. This improves their ability to think rationally and make sound decisions.
- Problem-solving sessions provide a platform for students to explore different perspectives and think outside the box.
- Problem-solving sessions often present students with real-world scenarios, allowing them to apply theoretical knowledge to practical situations. This helps bridge the gap between classroom learning and real-life experiences, making learning more meaningful and relevant.
- Successfully solving problems boosts students' confidence and self-esteem. As they overcome obstacles and achieve goals, they become more self-assured in their abilities and more willing to tackle new challenges.

**Course Outcome:**
**CO2:** To Illustrate concepts of Laplace and inverse Laplace transform to solve linear and simultaneous linear differential equations.

**Session Objective:**
The students will be able to apply Laplace transform technique to solve linear and simultaneous linear differential equations.

**Reason for choosing the particular topic (Method):**
Exploring the application of Laplace transforms to solve differential equations addresses a critical aspect of real-world problem solving. Understanding how Laplace transforms can be used to solve differential equations broadens one's understanding of both the transforms and the differential equations. It helps students understand the practical significance and usability of Laplace transforms as a problem-solving tool.

**How we Conducted Problem Solving session. :**

- The faculty explained the concept of application of Laplace transform to solve differential equations the day before and asked students whether they were willing to apply the concept on next day.
- The faculty give some questions to students on same concept and asked the students to solve.
- The students formed groups and discussed the questions.
- Most of the students of class solve all given problems.

**Committee Members:** Mr. Prashant Gawade (Course Coordinator)

**Total No. of Student Benefited:**

58 students participated from S.Y. B. Tech Computer Engineering Department.

**Learning Outcomes of Activity:**
The students were able to solve differential equation using Laplace Transform.

**Pre-implementation Reflection:**

- Some students were not interested to participate in problem solving session.
- Less confidence.

**Post Implementation reflection:**

- Students were able to apply the Laplace transform technique to solve differential equations.
- All the students enjoyed the Session.
- Students' feedback reflected that they have understood the concept.

| Learning Outcomes/ Program Outcomes | PO1 | PO2 | PO3 | PSO2 |
|---|---|---|---|---|
| • **LO4:** The students will be able to apply the Laplace transform technique to solve differential equations. | 2 | 1 | 1 | 1 |

POs Mapped: PO1, PO2, PO3, PSO2

**JUSTIFICATION FOR MAPPING**

| PO/PSO MAPPED | JUSTIFICATION |
|---|---|
| PO1 | Using basic knowledge of mathematics, we find Inverse Laplace transform of function. |
| PO2 | We formulate differential equation of mechanical or electrical system. And find its solution using L.T |
| PO3 | We can find solution of Linear and simultaneous linear differential equations, which arises in engineering field. |
| PSO2 | Students will be able to find solution for differential equation using Laplace transform with the help of their computer programming knowledge. |

PO Attainment:

Rubrics for Attainment:

| Attainment Level | Description |
|---|---|
| Level 1 : Low | 60% of students scoring more than set attainment level in the Poll. |
| Level 2 : Medium | 70% of students scoring more than set attainment level in the Poll. |
| Level 3 : High | 80% of students scoring more than set attainment level in the Poll. |

**Overall Attainment: Level 3(high)**

**PO's Attained:** PO1, PO2, PO3, PSO2,

**References: 1. Higher Engineering Mathematics by** Erwin Kreyszig
2. Advance Engineering Mathematics by H.K.Dass

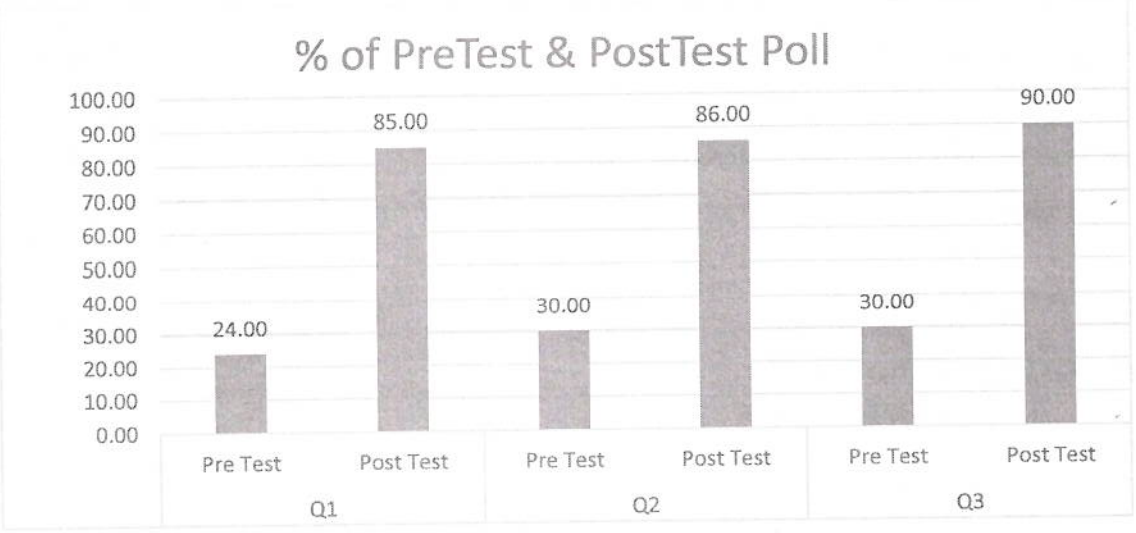


**Fig. Pre Test and Post Test Poll Before & After of Event**

Mr. Prashant Gawade
Event Coordinator

Dr. Makarand Shahade
HOD, Computer Engineering

23-24 (5)

Shri Vile Parle Kelavani Mandal's

# Institute of Technology, Dhule

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## DEPARTMENT OF COMPUTER ENGINEERING

A.Y 2023-24

| | | |
|---|---|---|
| **Name of Event** | : | **INNOVATIVE PRACTICES** |
| **Dates** | : | **11th Sept 2023** |
| **Time** | : | **05:00 pm** |
| **Venue** | : | **Classroom: 208** |
| **Course Code & Title** | : | **BTCOE705 Design Thinking** |
| **Learning Strategy** | : | **Brainstorming** |
| **Topic** | : | **Empathy and Persona** |

**Brainstorming:**

Brainstorming usually takes place in a group setting where people get together to creatively solve problems and come up with ideas.

**The benefit of the Brainstorming:**

- Students immediately apply content in a relevant, real-world context.
- Students can transcend and think beyond the confines of the classroom setting.
- Students see the relevance of the content for handling real-world situations.
- The instructor and students receive immediate feedback about studentunderstanding of the content.
- Students engage in higher-order thinking and learn content more deeply.
- Instructors can create useful scenarios when setting the parameters of the role play whenreal scenarios or contexts might not be readily available.

**Course Outcome:**

***CO2:*** *To Identify the empathy of a person and use an empathy map to create the Persona and Customer Journey map.*

**Goal:**

The students will be able to create empathy for a person and subsequently develop a persona..

**Reason for choosing the particular topic (Method):**

Students are asked to "act out" so they get a better idea of the concepts and theories being discussed. Brainstorming helps the students while designing the product by keeping the customer as the center. In addition, brainstorming is used to empower, engage, and stimulate a classroom by putting students at the Centre of the learning process.

**How we implemented Brainstorming:**

- The faculty discussed the concept of Customer Empathy and persona creation steps on the previous day and asked for willingness from the students to be a part of brainstorming the concepts on the next day.
- The students formed groups and prepared for the brainstorming.
- The students in each group are divided into software developers and customer willing to build Applications.
- Students who are enacted as developers conduct interviews with students enacted as customers.
- Based on interview answers students create a empathy map for customer student and then develop the persona for customer and submit to course coordinator.

**Committee Members: Prof. Ashish Awate,** Coordinator

**Dr. Makarand Shahade**, Convener

**Total No. of Student Benefited:**

52 students participated from the Final Year B. Tech Computer Engineering Department.

**Learning Outcomes of Activity:**
The students were able to create an Empathy map and persona for the Customer.

**Pre-implementation Reflection:**

- Some students were not willing to participate which necessary for the execution of the brainstorming activity.
- Less number of students were involved in the activity.

**Post Implementation reflection:**

- Students were able to identify and create the empathy map and persona.
- All the students enjoyed the activity.
- Students' feedback reflected that they understood the concept.
- Some other Design thinking methodology can be added in the next brainstorming in addition to the empathy map and persona to depict closer to the real scenario in design thinking.

| Learning Outcomes/ Program Outcomes | PO2 | PO3 | PO4 | PO5 | PO6 | PO8 | PO12 | PSO1 | PSO2 | PSO3 |
|---|---|---|---|---|---|---|---|---|---|---|
| *LO5:* To Sketch the persona and Customer Journey Map. | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 1 | 2 | 1 |

POs Mapped: PO2, PO3, PO4, PO5, PO6, PO8,PO12, PSO1, PSO2,PSO3

**JUSTIFICATION FOR MAPPING**

| PO/PSO MAPPED | JUSTIFICATION |
|---|---|
| PO2 | The student will **Review** the user's daily activity, likes, dislikes, etc. to identify empathy of the person and reach a sustainable conclusion for user persona |
| PO3 | Students will **Design** solutions for customer persona using empathy of person. |
| PO4 | Students will **Use** empathy for the person to provide valid conclusion for user persona |
| PO5 | Students will **Apply** the appropriate process to empathize to create the persona of user. |
| PO6 | Student teams will be able to **apply** reason informed by the empathy of the person to assess societal, health, safety, legal, and cultural issues in designing solutions for problems using an empathy map and the persona of the customer. |
| PO8 | Students Can **Apply** ethical principles and commit to professional ethics and responsibilities while performing empathy of person and creating the persona of a customer |
| PO12 | The student will become aware of the need for lifelong learning and the continued upgrading of technical knowledge of user empathy and user persona development. |
| PSO1 | Student will able to **Develop and design** empathy map and persona for software designing. |
| PSO2 | Students will provide solutions for software and system design problems. |
| PSO3 | The ability to employ Empathy map and persona in creating innovative career paths in software system design. |

PO Attainment:

Rubrics for Attainment:

| Attainment Level | Description |
|---|---|
| Level 1 : Low | 60% of students scoring more than set attainment level in the Poll. |
| Level 2 : Medium | 70% of students scoring more than set attainment level in the Poll. |
| Level 3 : High | 80% of students scoring more than set attainment level in the Poll. |

**Overall Attainment: Level 3(high)**

**PO's Attained:** PO2, PO3, PO4, PO5, PO6, PO8,PO12, PSO1, PSO2,PSO3

**References:**

https://serc.carleton.edu/introgeo/roleplaying/whatis.html

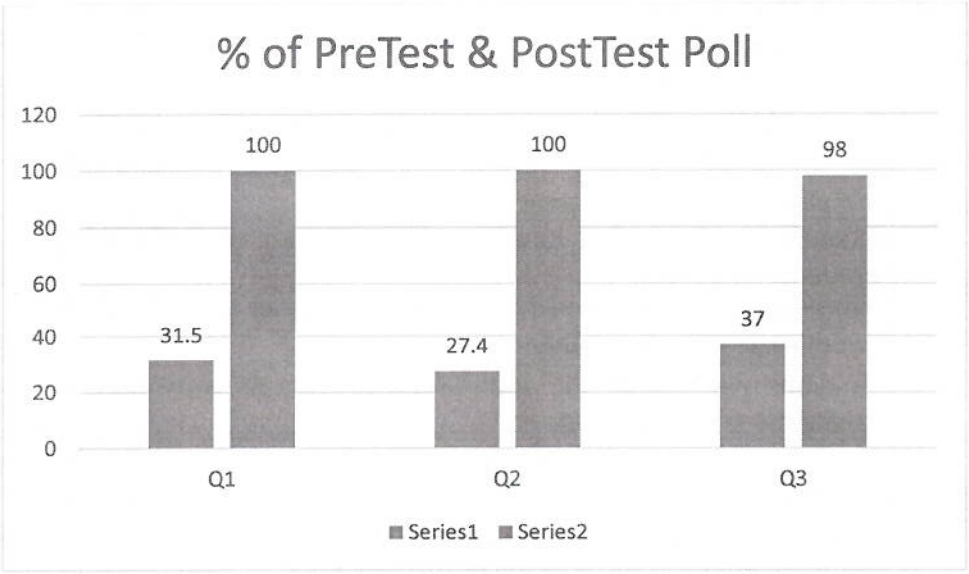


**Fig. PreTest and PostTest Poll Before & After of Event**

**Prof. Ashish Awate**
**Event Coordinator**

**Dr. Makarand Shahade**
**HOD, Computer Engineering**

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Shri Vile Parle Kelavani Mandal's

# Institute of Technology, Dhule

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## DEPARTMENT OF COMPUTER ENGINEERING

A.Y 2023-24

| | | |
|---|---|---|
| **Name of Event** | : | **INNOVATIVE PRACTICES** |
| **Dates** | : | **14 September 2023** |
| **Time** | : | **05:00 pm** |
| **Venue** | : | **Classroom: 209** |
| **Course Code & Title** | : | **BTCOC305** Discrete Mathematics |
| **Learning Strategy** | : | Mind-games |
| **Topic** | : | **The Bridges of Königsberg** |

**The Bridges of Königsberg:**

This is a historical puzzle involving a river and a series of islands connected by bridges. The challenge is to determine whether it's possible to walk through the city, crossing each bridge exactly once and returning to the starting point. This problem led to the development of graph theory, which has applications in computer science, transportation planning, and more. It's a fascinating exploration of network connectivity and traversal.

- **Objective:**

The objective of the mind game associated with "The Bridges of Königsberg" problem is to explore the concept of graph theory and develop problem-solving skills in the context of network connectivity. The problem involves a historical scenario where the challenge is to determine whether it's possible to walk through the city of Königsberg, crossing each of its seven bridges exactly once and returning to the starting point. Through this challenge, participants aim to:

**Understand Graph Theory:** The problem serves as an introduction to graph theory, a branch of discrete mathematics that studies the properties of graphs, which consist of vertices (nodes) connected by edges (lines).

**Apply Graph Theory Concepts:** Participants learn to represent the city of Königsberg as a graph, where the landmasses are vertices and the bridges are edges. They apply concepts such as degree (number of edges incident to a vertex) and Eulerian paths (paths that traverse each edge exactly once).

**Develop Problem-Solving Skills**: By attempting to solve the problem, participants exercise critical thinking, logical reasoning, and creativity. They learn to devise strategies to navigate the city while obeying the constraints of the problem.

**Appreciate Real-World Applications:** The problem's historical context and its relevance to graph theory highlight the practical applications of discrete mathematics in various fields, including transportation planning, computer science, and network analysis.

- **Activity Details**: following topics are covered
  The Bridges of Königsberg.

- **Total No. of Student Turned up:**

  68 students participated from Computer Engineering Department

- **Outcome of Activity:**
  The outcome of the mind game associated with "The Bridges of Königsberg" typically results in participants gaining a deeper understanding of graph theory concepts and problem-solving strategies. Here are some potential outcomes:
  **Solution Exploration**: Participants may work individually or in groups to explore different approaches to solving the problem. They may attempt to devise strategies for traversing the city of Königsberg while crossing each bridge exactly once and returning to the starting point.
  **Discovery of Eulerian Paths:** Through experimentation and analysis, participants may discover the concept of Eulerian paths, which are paths that traverse each edge of a graph exactly once. They may realize that the problem of traversing the bridges of Königsberg is closely related to finding Eulerian paths in a graph.
  **Appreciation of Graph Properties:** Participants may develop an appreciation for the properties of graphs, such as degrees of vertices and connectivity. They may observe how the configuration of bridges in Königsberg forms a specific type of graph and learn how to analyze its properties.
  **Discussion and Collaboration:** The mind game often fosters discussion and collaboration among participants as they share ideas, insights, and strategies for approaching the problem. Collaborative problem-solving encourages teamwork and communication skills.
  **Learning Through Failure:** Participants may encounter challenges and setbacks as they attempt to solve the problem, but these experiences can be valuable learning opportunities. They may learn from their mistakes, refine their strategies, and develop resilience in problem-solving.

POs Mapped: PO1, PO2, PO3, PO12, PSO Mapped : PSO1,2,3

| Learning Outcomes/ Program Outcomes | PO1 | PO2 | PO3 | PO12 |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| *LO1:* Design innovative solutions for traversing the bridges of Königsberg while meeting the specified constraints. | 2 | 2 | 2 | 2 |

**JUSTIFICATION FOR MAPPING**

| PO/PSO MAPPED | JUSTIFICATION |
|---|---|
| PO1 | While the problem doesn't directly involve applying engineering knowledge, it does require participants to apply mathematical and logical reasoning skills, which are foundational to engineering knowledge. |
| PO2 | Participants must identify and analyze the complex problem of traversing the bridges of Königsberg, considering the constraints and possibilities involved. |
| PO3 | The problem requires participants to design a solution for traversing the bridges of Königsberg while obeying the given constraints. |
| PO12 | Participants engage in independent learning and problem-solving as they explore the problem and develop their understanding of graph theory and its applications. |
| PSO1 | Comprehend, analyze, design, and implement computer programs: Participants in the mind game must comprehend the problem statement, analyze the constraints, design strategies for traversal, and potentially implement algorithms to solve it. |
| PSO2 | The mind game challenges participants to solve the problem of traversing the bridges of Königsberg using mathematical and algorithmic approaches, demonstrating problem-solving skills. |
| PSO3 | While the problem itself may not directly involve modern computer tools, participants may leverage computational thinking and algorithmic skills, which are essential in various modern computer-related fields. Engaging in such mind games fosters creativity and innovation, which are valuable for building a successful career in computer science and related areas. |

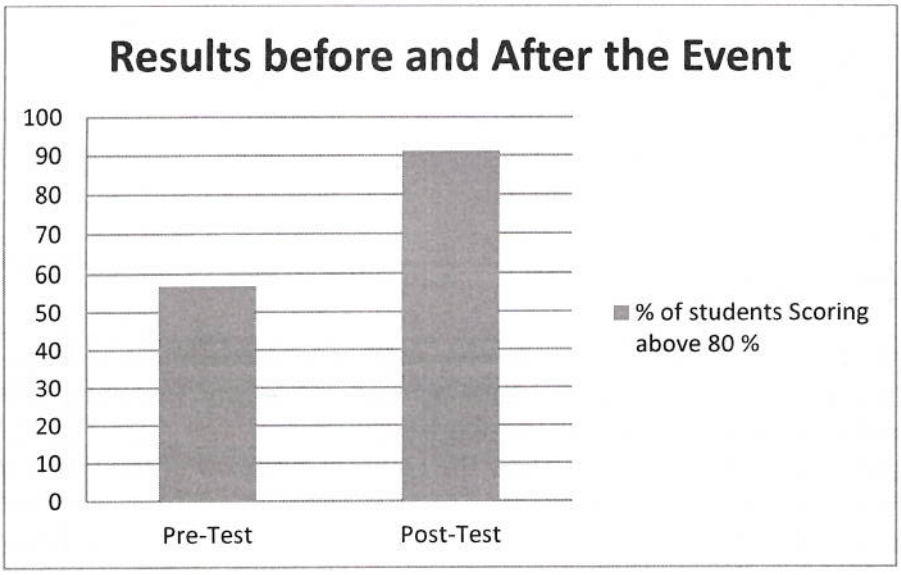
PO Attainment:

Rubrics for Attainment:

| Attainment Level | Description |
|---|---|
| Level 1 : Low | 50% of students scoring more than set attainment level in the Exam. |
| Level 2 : Medium | 60% of students scoring more than set attainment level in the Exam. |
| Level 3 : High | 70% of students scoring more than set attainment level in the Exam. |

Overall Attainment : Level 3( high)

**PO's Attained : PO1, PO2, PO3,PO12 PSO's Attained : PSO1,2,3**




**Prof. Umakant Mandawkar**
**Event Coordinator**

**Dr. Makarand Shahade**
**HOD, Computer Engineering**

Shri Vile Parle Kelavani Mandal's

# Institute of Technology, Dhule

Approved by AICTE & Affiliated to DBATU

## DEPARTMENT OF COMPUTER ENGINEERING

A.Y 2023-24

| | | |
|---|---|---|
| **Name of Event** | : | **INNOVATIVE PRACTICES** |
| **Dates** | : | **14th Sept 2023** |
| **Time** | : | **10:00 am** |
| **Venue** | : | **Computer Lab-1 : 208** |
| **Course Code & Title** | : | **BTCOL306 Data Structures Lab** |
| **Learning Strategy** | : | **Virtual Labs** |
| **Topic** | : | **Linked List Operations** |

**Virtual Labs:**

Virtual Labs project is an initiative of Ministry of Education (MoE), Government of India under the aegis of National Mission on Education through Information and Communication Technology (NMEICT).

**Course Outcome:**

***CO3:*** *To implement data structures as single and double linked list.*

**Committee Members:** Mr. Khalid Alfatmi, Coordinator.

**Total No. of Student Benefited:**

Conducted for each practical batch. 65 students participated from S.Y. B. Tech Computer Engineering Department.

**Learning Outcomes of Activity:**

The students were able to demonstrate various operations on Linked List like insert, delete, search.

**Pre-implementation Reflection:**

- Students were not confident about insertion and deletion operation on Linked List.

**Post Implementation reflection:**

- Students demonstrated operation like Insertion at the beginning, after a node and at the end.
- Student got clear idea how to implement the linked list operation using C language.

| Learning Outcomes/ Program Outcomes | PO1 | PO3 | PO5 | PO12 | PSO1 | PSO2 |
|---|---|---|---|---|---|---|
| **ELO7: Students will be able to Implement** data structures as single and double linked list. | 2 | 2 | 3 | 2 | 2 | 2 |

POs Mapped: PO1, PO2, PO5, PO9, PO10, PO12, PSO1, PSO2

**JUSTIFICATION FOR MAPPING**

| PO/PSO MAPPED | JUSTIFICATION |
|---|---|
| PO1 | Student will Apply the knowledge of engineering to implement Linked List |
| PO3 | Student will design solution using Linked list for real world problems |
| PO5 | Students will use modern IDE tools like Virtual labs from anywhere to learn and clear their concepts |
| PO12 | Student can apply the concept of linked list data structure to real world problems. |
| PSO1 | Student ability to analyze and implement the operations of Linked List |
| PSO2 | Students will provide the solution to real world problem with single or double linked list |

PO Attainment:

Rubrics for Attainment:

| Attainment Level | Description |
|---|---|
| Level 1 : Low | 60% of students scoring more than set attainment level in the Poll. |
| Level 2 : Medium | 70% of students scoring more than set attainment level in the Poll. |
| Level 3 : High | 80% of students scoring more than set attainment level in the Poll.. |

**Overall Attainment: Level 3(high)**

**PO's Attained:** PO1, PO3, PO5, PO12, PSO1, PSO2

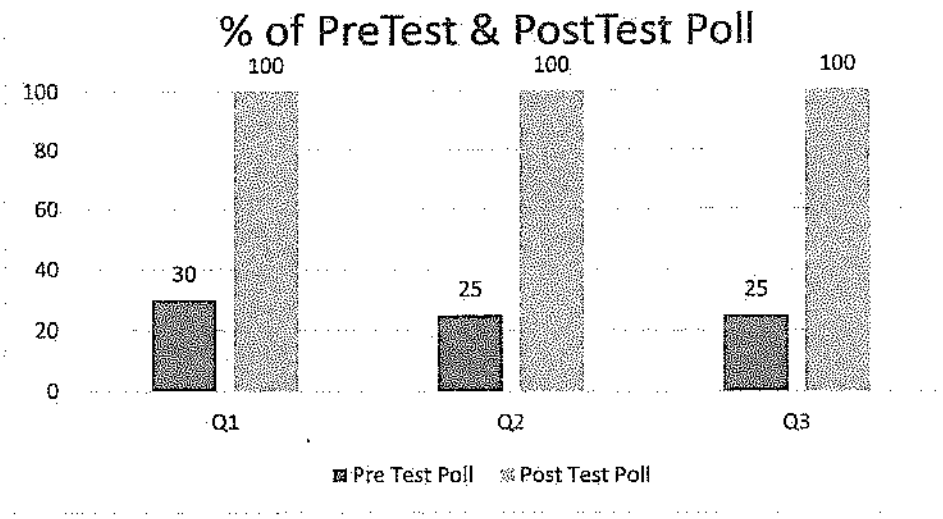
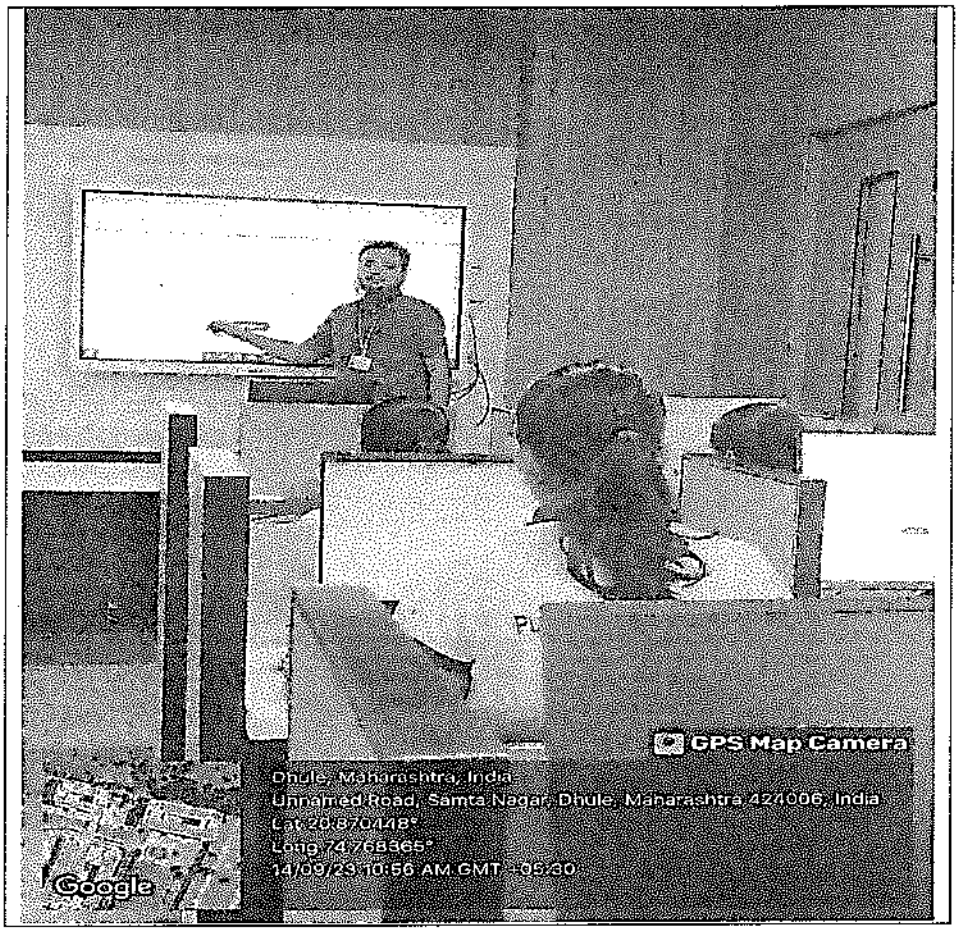
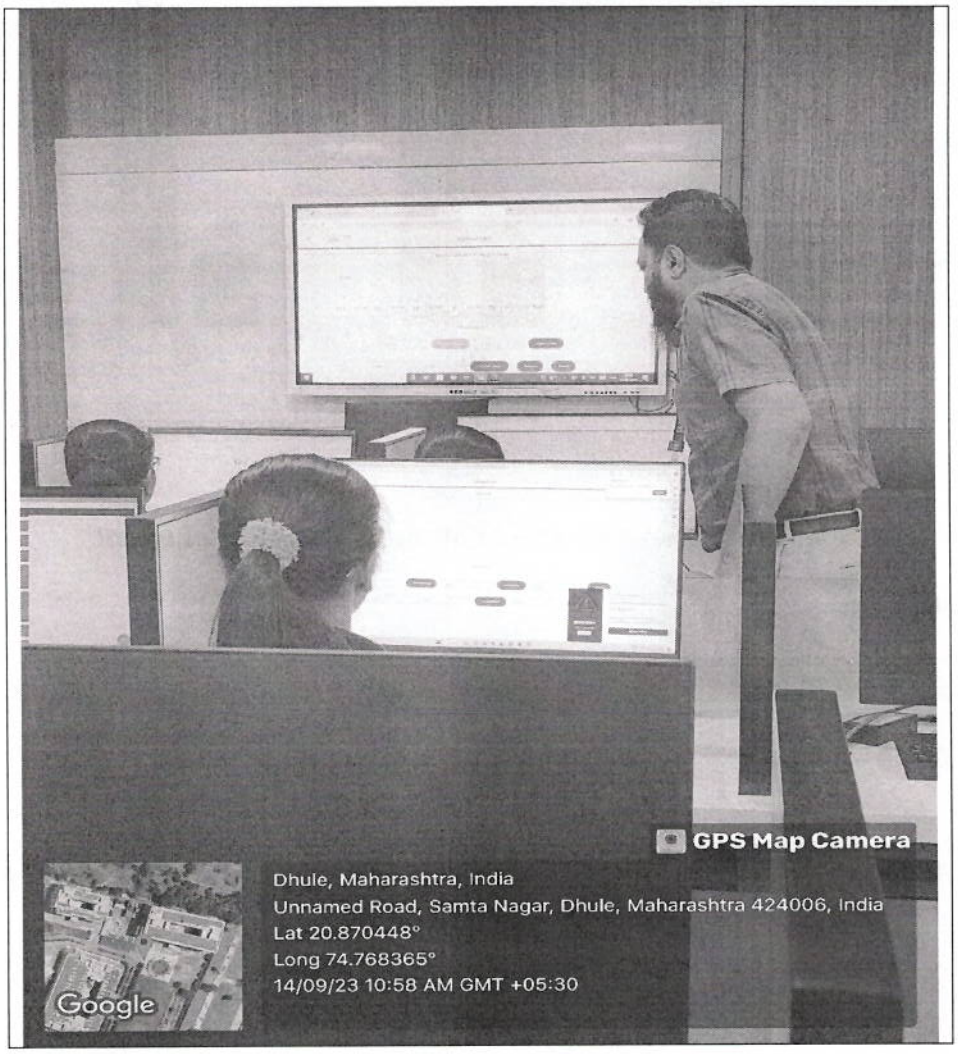



**Fig. PreTest and PostTest Poll Before & After of Event**

**Photographs of Event:**






**Khalid Alfatmi**
**Event Coordinator**

**Dr. Makarand Shahade**
**HOD, Computer Engineering**

23-24 (9)

Shree Vile Parle Kelavani Mandal's

# Institute of Technology, Dhule

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## DEPARTMENT OF COMPUTER ENGINEERING

A.Y 2023-24

| | | |
|---|---|---|
| **Name of Event** | : | **INNOVATIVE PRACTICES** |
| **Dates** | : | **21st Oct 2023** |
| **Time** | : | **05:00 pm** |
| **Venue** | : | **Classroom: 205** |
| **Course Code & Title** | : | **Economics & Management ( BTHM505 A)** |
| **Learning Strategy** | : | **Virtual Lab** |
| **Topic** | : | **Money Management** |

**Objectives of Innovative Practices:**

- Students will be able to manage money
- Students will be able to invest their money in various ways
- Students will be able to understand the importance of mutual funds.

**Money Management and Investment:**

Money management and investment are essential aspects of personal finance that play a significant role in achieving financial stability and long-term wealth. In today's fast-paced world, understanding how to manage your money wisely and make strategic investments is crucial for securing your financial future and realizing your financial goals

**Benefit of the activity:** Proper money management ensures you have emergency funds and a safety net for unexpected expenses, providing financial stability during challenging times. Intelligent investments have the potential to grow your wealth significantly over time, enabling you to achieve your financial goals and dreams. Effective money management and strategic investments can lead to financial freedom, allowing you to make choices without being constrained by financial limitations

Goal: The students will be able to learn how to manage and invest money

**How we implemented online Virtual Lab:**

- The Objective of the Simulation and Gaming Virtual Laboratory is to design simulation experiments on various aspects of Economics and Management. Specific case studies would be drawn from areas such as Money management, e-business and decision sciences. These simulation experiments would be of interest to the students

**Link:** Vlab (iitkgp.ac.in)

- **Committee Members:**
  Dr. Makarand Shahade, Convener
  Prof. Kiran Somwanshi, Coordinator

- **Total No. of Student Turned up:**
  21 students participated from T.Y. BTech. Computer Engineering Department.
  Total Percentage of Students Present = 87%

- **Outcome of Activity:**
  1. Students will create scenario of money management in Virtual Lab.
  2. Students learn & create the money management planning.

- **Students Feedback:**
  - "I appreciated the real-life examples and case studies conducted using Virtual Lab. It helped me connect theory to practical financial.
  - The interactive sessions were engaging. I felt encouraged to participate and ask question
  - The Virtual materials and resources provided were valuable. I can use them for further reference and learning.
  - The Virtual Lab inspired me to start investing and managing my finances more effectively. I feel motivated to take action.

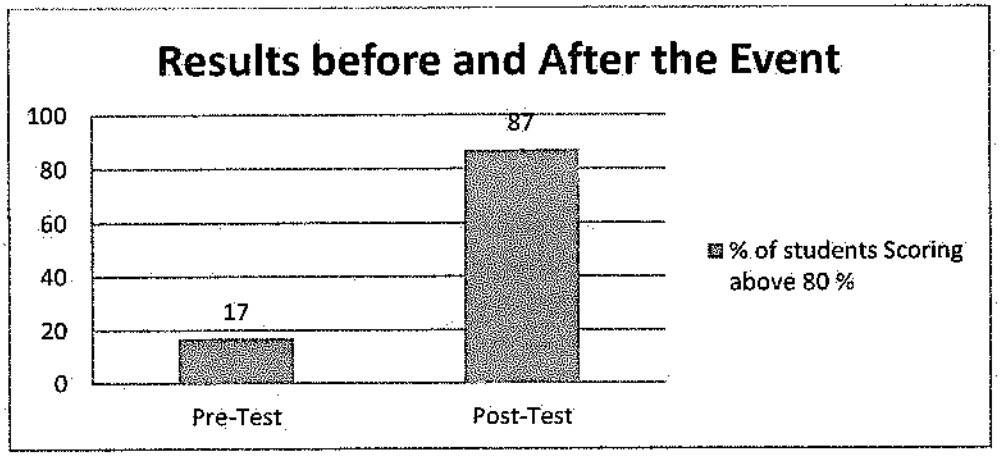


**Fig. Feedback of Event After & Before Test**

| PO/PSO MAPPED | JUSTIFICATION |
|---|---|
| PO1 | Students will describes features of Economics & Management |
| PO5 | Students will use the Virtual Tools to implement Management ratio's |
| P011 | Student will provide computer based solutions for real world problem by applying Management & Economics Principles. |
| PO12 | The ability to employ Virtual tools using different features of Economics & Managements |
| PSO2 | Students will provide computer-based solution for the real-world problems of Management & Economics applying standard practices, problem solving strategies and methodologies. |
| PSO3 | The ability to employ modern virtual tools in creating innovative career path in management & Economics . |

Rubrics for Attainment:

| Attainment Level | Description |
|---|---|
| Level 1 : Low | 60% of students scoring more than set attainment level in the Poll. |
| Level 2 : Medium | 70% of students scoring more than set attainment level in the Poll. |
| Level 3 : High | 80% of students scoring more than set attainment level in the Poll. |

**Overall Attainment:** Level 3 (high)
**PO's attained:** PO1,5,11,12
**PSO** :2,3

**Event Coordinator**
**Prof.Kiran Somwanshi**

Shri Vile Parle Kelavani Mandal's Institute of Technology DHULE

**HOD**
**Dr. Makarand Shahade**

23-24 (10)

Shri Vile Parle Kelavani Mandal's

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## DEPARTMENT OF COMPUTER ENGINEERING

A.Y 2023-24

| | | |
|---|---|---|
| **Name of Event** | : | **INNOVATIVE PRACTICES** |
| **Dates** | : | **26 October 2023** |
| **Time** | : | **5:00 to 6.00** |
| **Venue** | : | **Classroom: 210** |
| **Course Code & Title** | : | **BTCOC702/ Big Data Analytics** |
| **Learning Strategy** | : | **Crossword Puzzle** |
| **Topic** | : | **Big Data Analtyics Jargons** |

**Crossword Puzzle:**

Crossword puzzle is a suitable game used to help students to master vocabulary easily by giving opportunity for them to memorize as much as possible vocabulary, for there will be many words given as cues that should be understood by them to be able to fill the squares with the suitable words too.

**The benefit of the Crossword Puzzle:**

- The crossword puzzle is a kind of word game that can help students to extend their vocabulary knowledge.
- From an exam point of view it plays an important role in solving multiple-choice type questions.
- It can be useful for students to memorize terminology, definitions, spelling, and pairing key concepts.
- It helps students to Improve Cognitive Abilities.
- Crosswords for students can improve their vocabulary, analytical skills, and memory.

**Course Outcome:**

***CO2:*** *To Analyze the various big data platform like Hadoop, Map Reduce.*

***CO3:*** *To Illustrate the use of various Big Data Streaming Platforms.*

***CO4:*** *To Perform big data application using machine learning and deep learning*

**Goal:**
The students will be able to improve their *Big Data Analytics* vocabulary

**Reason for choosing the particular topic (Method):**
First, crossword puzzles motivate students to remember and understand a word's meaning. Second, students needed to understand the words given in each clue in addition to the word in the grid, resulting in increased vocabulary. In addition, a crossword puzzle is used to empower, engage, and stimulate a classroom by putting students at the Centre of the learning process.

**How we implemented Brainstorming:**

- At the end of the chapter or module faculty developed a crossword grid with clues using the online platform.
- A crossword puzzle of 20 to 25 clues was given to the students.
- The students discussed with their peers and completed the puzzle.
- After completion of the puzzle activity, the faculty member discussed the answer to make the students aware of the correct answer.

**Committee Members:** Prof. Umakant Mandawkar, Coordinator
Dr. Makarand Shahade, Convener

**Total No. of Student Benefited:**

44 students participated from the Final Year B. Tech Computer Engineering Department.

**Learning Outcomes of Activity:**
Completing crossword puzzles can reinforce understanding of fundamental concepts and terminology related to big data analytics, such as data mining, machine learning, Hadoop, MapReduce, etc. By encountering these terms in a puzzle format, learners engage in active recall, which enhances comprehension and retention.

**Pre-implementation Reflection:**

- Few students found it difficult to complete the puzzle
- Students just might not have the necessary knowledge to complete crossword puzzles.

**Post Implementation reflection:**

- The crossword puzzle activity was very interesting and students were able to identify the appropriate jargon in *Big Data Analytics*.
- Vocabulary of the terms related to *Big Data Analytics* is improved.
- Student's understanding of basic ma *Big Data Analytics* concepts is improved.
- This activity helps to test the level of understanding of the students.

| Learning Outcomes/ Program Outcomes | PO1 | PO2 | PO3 | PO4 | PO10 | PO12 | PSO1 | PSO2 |
|---|---|---|---|---|---|---|---|---|
| *LO1:* To apply deductive reasoning and critical thinking skills to solve clues and fill in the grid. In the context of big data analytics, this translates to developing problem-solving abilities necessary for analyzing large datasets, identifying patterns, and deriving insights. | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 |

POs Mapped: PO1, PO2, PO3, PO4,PO10, PO12 PSO Mapped :PSO1,PSO2

**JUSTIFICATION FOR MAPPING**

| PO/PSO MAPPED | JUSTIFICATION |
|---|---|
| PO1 | Crossword puzzles can reinforce understanding of key concepts and terminology in big data analytics, such as data mining algorithms, machine learning techniques, and database management systems. |
| PO2 | Crossword puzzles can challenge learners to analyze clues and formulate solutions using logical reasoning and problem-solving skills, similar to the process of identifying and analyzing complex engineering problems in big data analytics. |
| PO3 | Crossword puzzles can encourage learners to design creative solutions to complex clues, mirroring the process of designing system components or processes in big data analytics while considering various constraints and requirements. |
| PO4 | Crossword puzzles require learners to conduct research and analyze information to arrive at valid conclusions, akin to the research-based approach used in analyzing data and synthesizing information in big data analytics. |
| PO10 | Crossword puzzles can reinforce communication skills by requiring learners to interpret clues, write effective responses, and present their solutions clearly, reflecting the need for effective communication in conveying complex engineering activities in big data analytics. |
| PO12 | Crossword puzzles can serve as a tool for promoting lifelong learning by encouraging learners to engage in independent problem-solving and exploration of new concepts and terms in the evolving field of big data analytics. |
| PSO1 | By emphasizing the development of problem-solving abilities, which are crucial for understanding, analyzing, and implementing computer programs in various fields such as Data Science. The ability to analyze large datasets and identify |

| | |
|---|---|
| | patterns requires deductive reasoning and critical thinking skills, which are essential professional skills in the field of big data analytics. |
| PSO2 | focuses on problem-solving skills applied in the context of big data analytics. Students are expected to provide computer-based solutions for real-world problems by analyzing data, identifying patterns, and deriving insights, which are essential components of problem-solving in the field. |

**PO Attainment:**

Rubrics for Attainment:

| Attainment Level | Description |
|---|---|
| Level 1 : Low | 60% of students scoring more than set attainment level in the Poll. |
| Level 2 : Medium | 70% of students scoring more than set attainment level in the Poll. |
| Level 3 : High | 80% of students scoring more than set attainment level in the Poll. |

**Overall Attainment: Level 3(high)**
**PO's Attained:** PO1, PO2, PO3, PO4,PO10, PO12

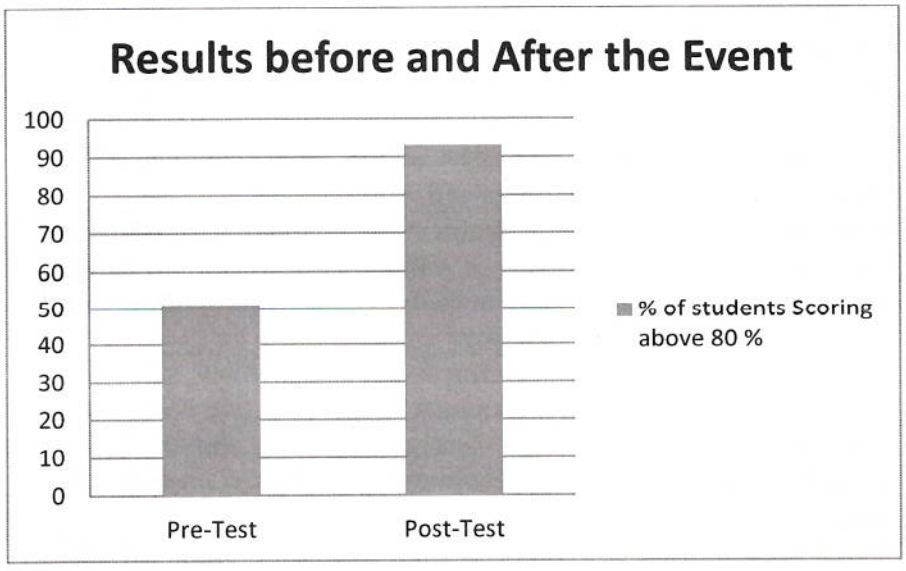



**Fig. PreTest and PostTest Poll Before & After of Event**

**Prof. Umakant Mandawkar**
**Event Coordinator**

Shri Vile Parle Kelavani Mandal's DHULE Institute of Technology

**Dr. Makarand Shahade**
**HOD, Computer Engineering**

23-24 (11)

Shri Vile Parle Kelavani Mandal's

# Institute of Technology, Dhule

Approved by AICTE & Affiliated to DBATU

## DEPARTMENT OF COMPUTER ENGINEERING

A.Y 2023-24

| | | |
|---|---|---|
| **Name of Event** | : | **INNOVATIVE PRACTICES** |
| **Dates** | : | **31st Oct 2023** |
| **Time** | : | **05:00 pm** |
| **Venue** | : | **Classroom: 209** |
| **Course Code & Title** | : | **BTCOC502 Theory of Computation** |
| **Learning Strategy** | : | **Crossword Puzzle** |
| **Topic** | : | **Automata and its Properties** |

**Crossword Puzzle:**

Crossword puzzle is a suitable game used to help students to master vocabulary easily by giving opportunity for them to memorize as much as possible vocabulary, for there will be many words given as cues that should be understood by them to be able to fill the squares with the suitable words too.

**The benefit of the Crossword Puzzle:**

- The crossword puzzle is a kind of word game that can help students to extend their vocabulary knowledge.
- From exam point of view it plays an important role in solving multiple-choice type questions.
- It can be useful for students to memorize terminology, definitions, spelling, and pairing key concepts.
- It helps students to Improve Cognitive Abilities.
- Crosswords for students can improve their vocabulary, analytical skills, and memory.

**Course Outcome:**

***CO1:*** *To identify formal machines, computations, Implement finite state machines for acceptance of strings and Construct Regular Expression, regular set, FA to RE and vice versa*

**Goal:**

The students will be able to improve their machine-learning vocabulary

**Reason for choosing the particular topic (Method):**
First, crossword puzzles motivate students to remember and understand a word's meaning. Second, students needed to understand the words given in each clue in addition to the word in the grid, resulting in increased vocabulary. In addition, a crossword puzzle is used to empower, engage, and stimulate a classroom by putting students at the Centre of the learning process.

**How we implemented Crossword Puzzle:**

- At the end of the chapter or module faculty developed a crossword grid with clues using the online platform.
- A crossword puzzle of 20 to 25 clues was given to the students.
- The students discussed with their peers and completed the puzzle.
- After completion of the puzzle activity, the faculty member discussed the answer to make the students aware of the correct answer.

**Committee Members:** Prof. Ashish Awate, Coordinator
Dr. Makarand Shahade, Convener

**Total No. of Student Benefited:**

61 students participated from the Final Year B. Tech Computer Engineering Department.

**Learning Outcomes of Activity:**
The students were able to improve their machine-learning concepts, vocabulary, analytical skills, and memory.

**Pre-implementation Reflection:**

- Few students found it difficult to complete the puzzle
- Students just might not have the necessary knowledge to complete crossword puzzles.

**Post Implementation reflection:**

- The crossword puzzle activity was very interesting and students were able to identify the appropriate jargon in machine learning.
- Vocabulary of the terms related to machine learning is improved.
- Student's understanding of basic machine learning concepts is improved.
- This activity helps to test the level of understanding of the students.

| Learning Outcomes/ Program Outcomes | PO1 | PO2 | PO3 | PO9 | PO10 | PO12 |
|---|---|---|---|---|---|---|
| ***LO1:*** **To Describe** Automata Theory, types and **Design** finite state automata for given string acceptance | 2 | 2 | 2 | 2 | 1 | 2 |

POs Mapped: PO1, PO2, PO3, PO10, PO12

**JUSTIFICATION FOR MAPPING**

| PO/PSO MAPPED | JUSTIFICATION |
|---|---|
| PO1 | Students will be able to understand the concept of characteristics of Automata and its types |
| PO2 | Students will be able to choose the appropriate automata type while approaching the problem. |
| PO3 | Students will be able to apply automata theory concept while building system. |
| PO10 | Students communication skills will be improved as they discuss the answers with peers |
| PO12 | The problem-solving skill earned through this activity helps the students in motivating lifelong learning. |

PO Attainment:

Rubrics for Attainment:

| Attainment Level | Description |
|---|---|
| Level 1 : Low | 60% of students scoring more than set attainment level in the Poll. |
| Level 2 : Medium | 70% of students scoring more than set attainment level in the Poll. |
| Level 3 : High | 80% of students scoring more than set attainment level in the Poll. |

**Overall Attainment: Level 3(high)**

**PO's Attained:** PO1, PO2, PO3, PO10, PO12

**References: https://puzzlemaker.discoveryeducation.com/criss-cross**

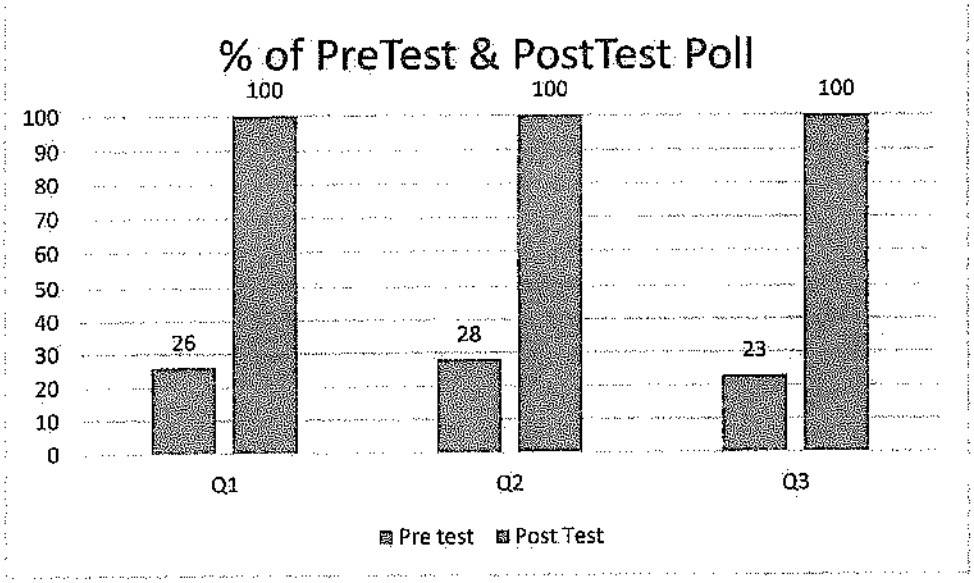
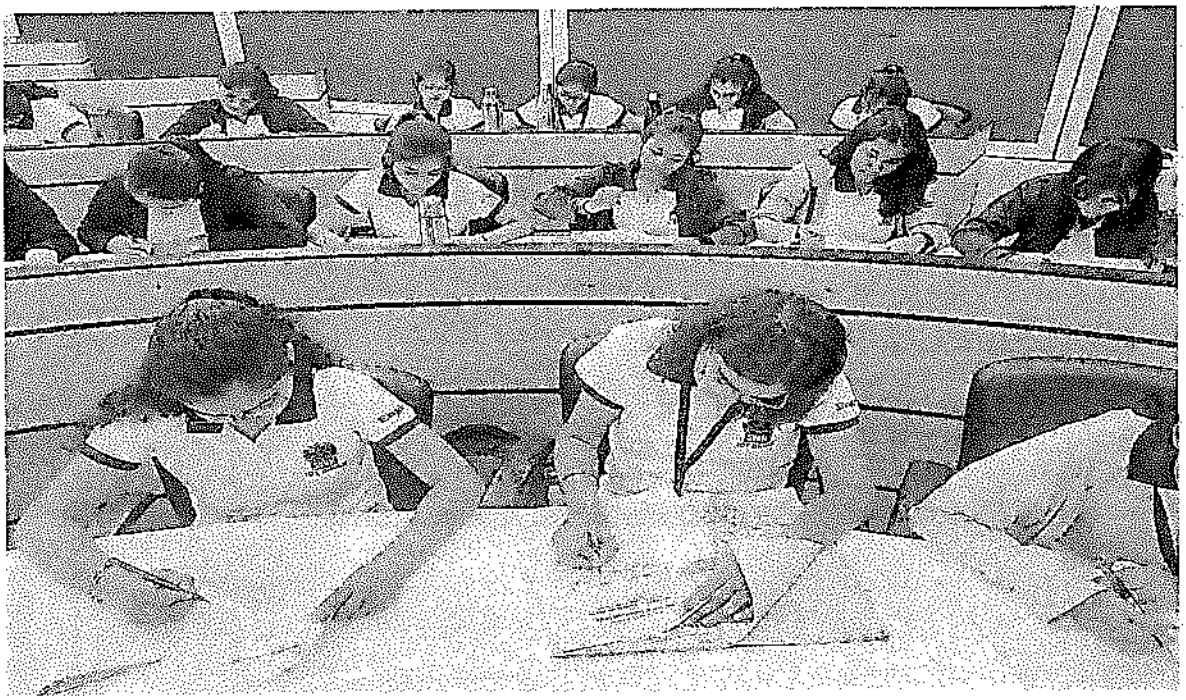
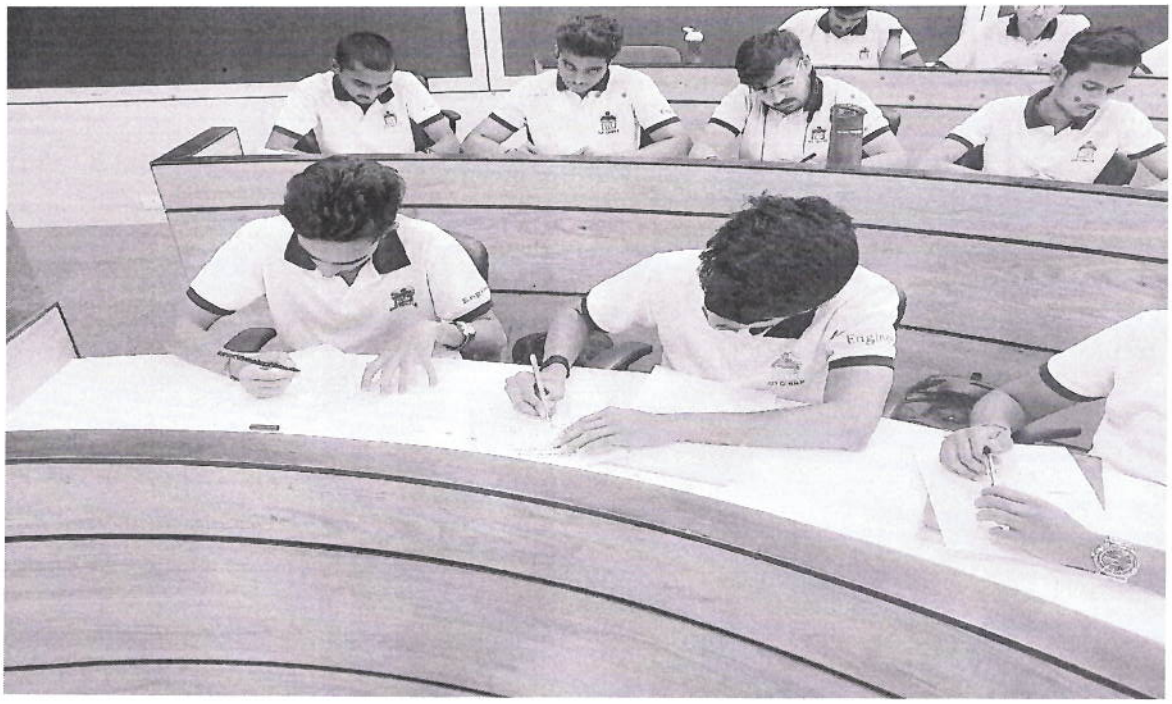



**Fig. PreTest and PostTest Poll Before & After of Event**

**Photos of Activity**

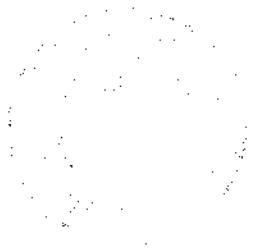




**Prof. Ashish Awate**
**Event Coordinator**

Shri Vile Parle Kelavani Mandal's Institute of Technology DHULE

**Dr. Makarand Shahade**
**HOD, Computer Engineering**



23-24 (12)

Shree Vile Parle Kelavani Mandal's

# Institute of Technology, Dhule

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## DEPARTMENT OF COMPUTER ENGINEERING

A.Y 2023-24

| | | |
|---|---|---|
| **Name of Event** | : | **INNOVATIVE PRACTICES** |
| **Dates** | : | **31st October 2023** |
| **Time** | : | **05:00 pm** |
| **Venue** | : | **Class room : 210** |
| **Course Code & Title** | : | **BTCOE504 (B): Numerical Methods** |
| **Learning Strategy** | : | **Competition Based Learning** |
| **Topic** | : | **Numerical Integration** |

**Competition-Based Learning:**

Organize competitions or challenges where students compete against each other to solve numerical method problems within a given time frame. This fosters a sense of camaraderie and encourages students to push themselves to excel.

**Benefit of the Competition Based Learning:**

Competition-based learning, when implemented effectively, offers several benefits for students:

1. **Increased Engagement**: Competition naturally sparks students' interest and motivates them to actively participate in learning activities. The desire to win or outperform peers can drive students to invest more effort and time into mastering the subject matter.
2. **Enhanced Learning Retention**: When students are engaged in a competitive environment, they tend to pay closer attention to the material and are more likely to retain what they learn. The competitive element adds excitement and urgency, leading to better memory consolidation.
3. **Development of Critical Skills**: Competition-based learning encourages the development of critical skills such as problem-solving, critical thinking, and decision-making. Students must apply these skills strategically to succeed in competitive challenges, which prepares them for real-world situations where such skills are essential.
4. **Promotion of Collaboration and Teamwork**: While competition can be individualistic, it often involves elements of collaboration and teamwork. Students may work together in teams to solve problems or strategize, fostering communication skills and the ability to work effectively in groups.
5. **Identification of Strengths and Weaknesses**: Competing against peers provides valuable feedback for students to assess their strengths and weaknesses. By analyzing their performance relative to others, students can identify areas for improvement and focus their efforts on enhancing their skills.

6. **Boost in Confidence**: Success in competitive challenges can boost students' confidence and self-esteem. Even participation in competitions, regardless of the outcome, reinforces students' belief in their abilities and encourages them to take on new challenges.
7. **Preparation for Real-World Challenges**: The competitive nature of competition-based learning mirrors the competitive dynamics of the real world. By engaging in competitive activities, students learn to handle pressure, setbacks, and uncertainties, which prepares them for future academic and professional endeavors.
8. **Intrinsic Motivation**: Competition-based learning taps into students' intrinsic motivation to excel and achieve personal goals. The satisfaction derived from overcoming challenges and achieving success fuels students' desire to continue learning and improving.

**Course Outcome:**

***CO504-4:*** *Apply numerical method techniques to find approximate value of definite Integrals.*

**Goal:**

The students will be able to solve competitive exam problems.

**Reason for choosing the particular topic (Method):**

Overall, competition-based learning can be a powerful tool for fostering student engagement, promoting skill development, and instilling a growth mindset conducive to lifelong learning. However, it's essential to balance competition with collaboration and ensure that the learning environment remains supportive and inclusive.

**How we implemented Competition Based Learning:**

- The faculty has discussed the concept of Competition Based Learning on the previous day and asked willingness from the students to Competition Based Learning the concepts on the next day.
- The students formed groups and prepared for the Competition Based Learning.
- Prof. Prashant Gawade & Course coordinator was observer for the activity.

**Committee Members:** Dr. Makarand Shahade, Course Coordinator and Prof. Prashant Gawade.

**Total No. of Student Benefited:**

56 students participated from T.Y. B. Tech Computer Engineering Department.

**Learning Outcomes of Activity:**

Overall, competition-based learning in numerical methods not only facilitates skill development but also cultivates important qualities such as critical thinking, collaboration, and perseverance, preparing students for success in academic pursuits and beyond.

**Pre-implementation Reflection:**

- Some students were not willing to participate which necessary for the execution of competition-based learning activity.

**Post Implementation reflection:**

- By systematically reflecting on the implementation of competition-based learning in numerical methods, educators can gain valuable insights into its impact on student learning and identify strategies for enhancing its effectiveness in fostering mathematical proficiency and fostering a culture of academic excellence. All the students enjoyed the activity.
- Students' feedback reflected that they have understood the concept.

| Learning Outcomes/ Program Outcomes | PO1 | PO2 | PO3 | PO4 | PSO2 |
|---|---|---|---|---|---|
| ***LO4:*** Find numerical values of definite integration by using Newton-Corte's formula, Trapezoidal rule, Simpson one–third rule, Simpson three- eighth rule. | **2** | **2** | **1** | **1** | **1** |

**POs/PSO's Mapped**: PO1, PO2, PO3, PO4, PSO2

**JUSTIFICATION FOR MAPPING**

| PO/PSO MAPPED | JUSTIFICATION |
|---|---|
| PO1 | Moderately mapped as the students will be able to analyze the problem to be implemented |
| PO2 | Moderately mapped as the students will be able to formulate the problem based on the literature survey carried out. |
| PO3 | Slightly mapped as the students will be able to find a numerical solution for the problem identified |
| PO4 | Slightly mapped as the students will be able to depict the project outcome and future scope |
| PSO2 | Moderately mapped as the students will able to make a Programme to provide computer-based solution for the real-world problems applying standard practices, problem solving strategies and methodologies |

PO Attainment:

Rubrics for Attainment:

| Attainment Level | Description |
|---|---|
| Level 1 : Low | 60% of students scoring more than set attainment level in the Poll. |
| Level 2 : Medium | 70% of students scoring more than set attainment level in the Poll. |
| Level 3 : High | 80% of students scoring more than set attainment level in the Poll. |

**Overall Attainment: Level 3(high)**

**PO's Attained:** PO1, PO2, PO3, PO4, PSO2

**References:**

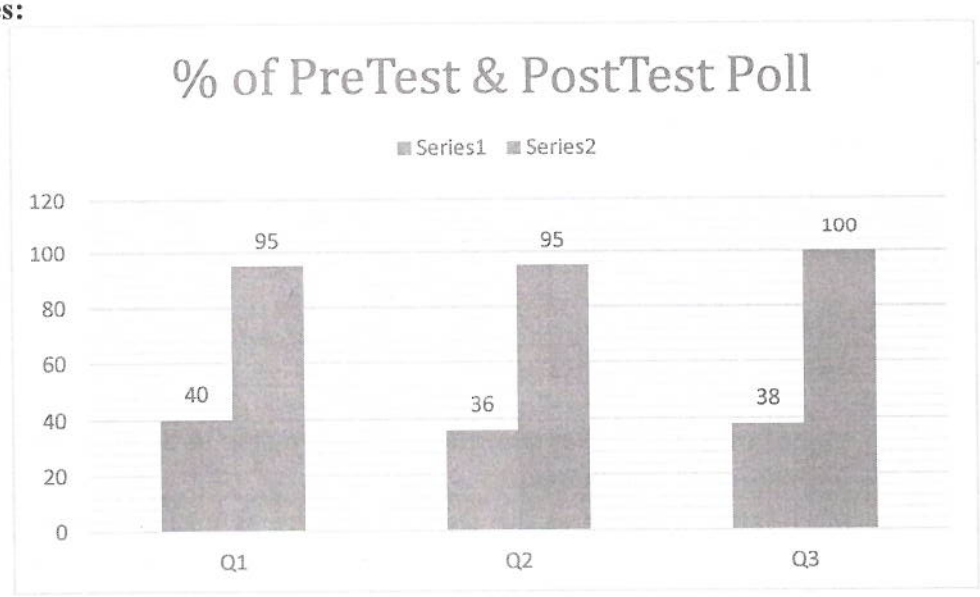



**Fig. PreTest and PostTest Poll Before & After of Event**

Mr. Chandu Koli
Event Coordinator

Dr. Makarand Shahade
HOD, Computer Engineering

23-24 (13)

Shri Vile Parle Kelavani Mandal's

# Institute of Technology, Dhule

Approved by AICTE & Affiliated to DBATU

## DEPARTMENT OF COMPUTER ENGINEERING

A.Y 2023-24

| | | |
|---|---|---|
| **Name of Event** | : | **INNOVATIVE PRACTICES** |
| **Dates** | : | **1st NOV 2023** |
| **Time** | : | **03:00 to 05:00 pm** |
| **Venue** | : | **Class room : 209** |
| **Course Code & Title** | : | **BTCOC504(A) & Blockchain Technology** |
| **Learning Strategy** | : | **Simulator** |

**Blockchain Simulation Tools:**

Simulation is a decision analysis and support tool. Simulation software allows to evaluate, compare and optimize alternative designs, plans and policies. As such, it provides a tool for explaining and defending decisions to various stakeholders.

**Objectives :**

- The objective is to present the design and implementation of a simulator where Blockchain can be implemented in a simple way and have their performance evaluated in different conditions
- Simulation modeling solves real-world problems safely and efficiently.
- It provides an important method of analysis which is easily verified, communicated, and understood. Across industries and disciplines, simulation modeling provides valuable solutions by giving clear insights into complex systems.
- A key goal is to encourage the free flow of ideas without judgment or critique among the students.

- **Activity Details:**

1. The working of simulation is explained in the class.
2. Practical's were performed with different stakeholder's examples.
3. The working of blocks and ledger is explained with live examples.
4. The identification of bottlenecks in chain, information and product flows were predicted by the students.
5. It indirectly helps the students to gain insight into which variables are most important to system performance and security.

**Total No. of Student Benefited:**

69 students participated from B. Tech Computer Engineering Department.

**Learning Outcomes of Activity:**
The students were able to identify bottlenecks in chain, information and product flows. It helped the students to gain insight into which variables are most important for different stakeholders and their security and performance.

**Pre-implementation Reflection:**

- Some students were not willing to listen and implement the simulation, which was actual necessary for the execution of activity.
- Less number of students was involved in the activity.

**Post Implementation reflection:**

- Students were able to do the simulation as explained.
- All the students actively participated and enjoyed the conversation.
- Students' feedback reflected that they have understood the concepts.
- Students were also able to identified the bottleneck among the different stakeholders and also their performance.

| **6. Learning Outcomes/ Program Outcomes** | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO9** | **PO10** | **PO 12** | **PSO 2** | **PSO 1** | **PSO 3** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ***LO4:*** The students will be able to analyze and implement the Blockchain methodologies in different applications. | **2** | **2** | **2** | **2** | **2** | **2** | **2** | **1** | **2** | **2** | **1** |

POs Mapped: PO1,PO2,PO3,PO4,PO5,PO9,PO10,PO12,PSO1,PSO2,PSO3

**JUSTIFICATION FOR MAPPING**

| PO/PSO MAPPED | JUSTIFICATION |
|---|---|
| PO1 | The students will gain and apply Knowledge of Engineering fundamentals such as Ledger, Block in a block chain, Hashing function, Markel Tree and Security Aspects of Blockchain. |
| PO2 | The students can Identify the role of different properties associated with blocks to make system more efficient using mathematical and engineering sciences. |
| PO3 | The students can find Solutions for engineering problem where security, trust and transparency is associated for the complex problems in permissioned Blockchain applications |
| PO4 | The students able to design permission model which can investigate and formulate the complex problem and analyze the designed models to solve complex problems |
| PO5 | The students can learn and use of different modern tools as Hyper Leger, Ethereum, Ripple and Corda for designing smart contracts. |
| PO9 | The students are able to act effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. |
| PO10 | The students are able to communicate effectively on complex engineering problems and are being able to comprehend and make effective presentations |
| PO12 | The students are able to use of modern tools for develop smart contracts can be for lifelong learning |
| PSO1 | The students are able to develop the ability to understand, Examine and Experiment platforms for writing smart contracts using Hyper ledger, Ethereum, Ripple, Corda for efficient design of computer-based systems. |
| PSO2 | The students are able to develop the ability to apply standard practices and strategies in blockchain technology such as Ledger, Public Ledger, block and blockchain, hashing function, hashing properties and also classify blockchain Models along with its security aspects to deliver advanced computing systems. |
| PSO3 | The students are able to develop the ability to employ platforms for writing smart contracts using Hyper ledger, Ethereum, Ripple, Corda in creating innovative career paths to be an entrepreneur, and a zest for higher studies and research. |

PO Attainment:

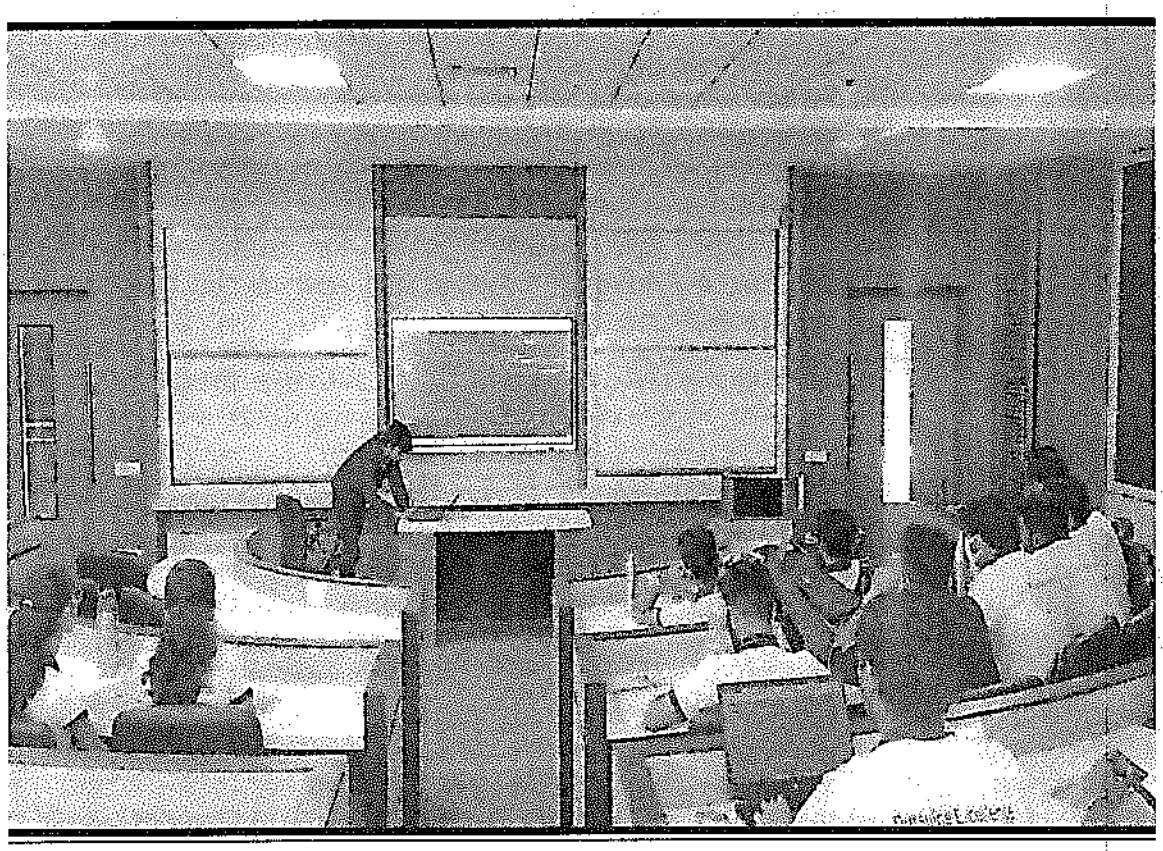
Rubrics for Attainment:

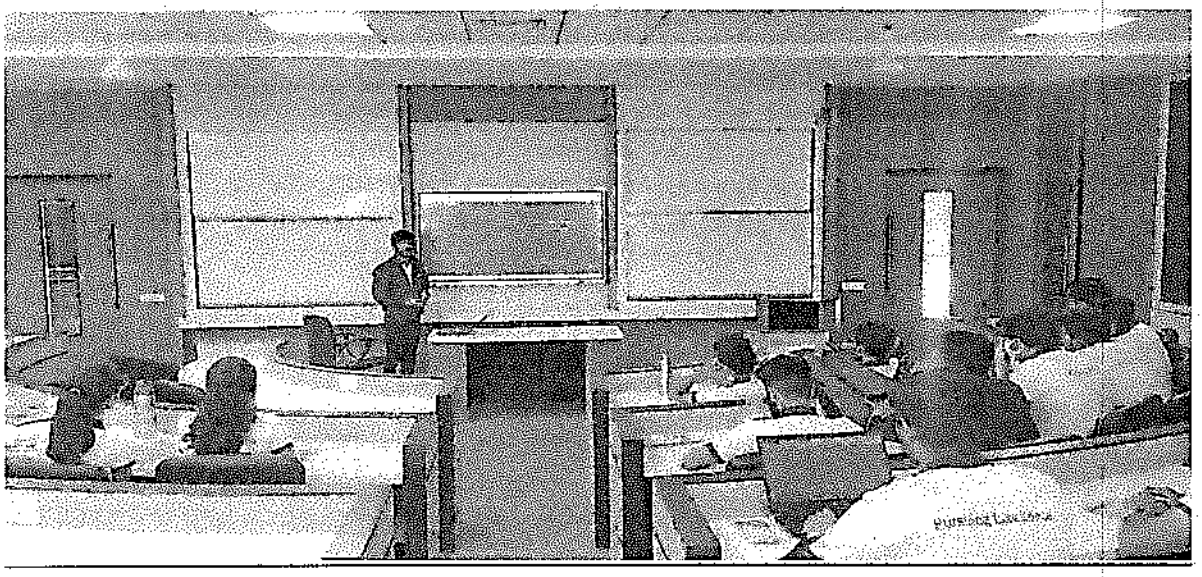
| Attainment Level | Description |
|---|---|
| Level 1 : Low | 60% of students scoring more than set attainment level in the Poll. |
| Level 2 : Medium | 70% of students scoring more than set attainment level in the Poll. |
| Level 3 : High | 80% of students scoring more than set attainment level in the Poll. |

**Overall Attainment: Level 3(high)**

**PO's Attained:** PO1,PO2,PO3,PO4,PO5,PO9,PO10,PO12,PSO1,PSO2,PSO3

- **Photographs of Event:**





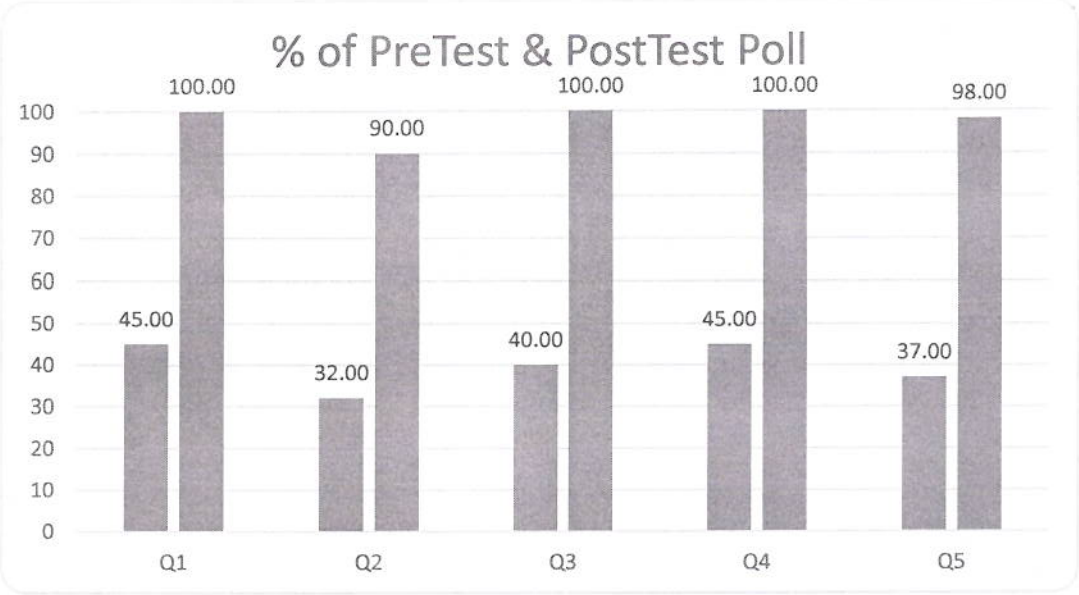



**Fig. PreTest and PostTest Poll Before & After of Event**

**Prof. Rinku Sharma**
**Event Coordinator**

Shri Vile Parle Kelavani Mandal's Institute of Technology DHULE

**Dr. Makarand Shahade**
**HOD, Computer Engineering**

23-24 (14)

Shri Vile Parle Kelavani Mandal's

# Institute of Technology, Dhule

Approved by AICTE & Affiliated to DBATU

## DEPARTMENT OF COMPUTER ENGINEERING

A.Y 2023-24

| | | |
|---|---|---|
| **Name of Event** | : | **INNOVATIVE PRACTICES** |
| **Dates** | : | **4th November 2023** |
| **Time** | : | **05:00 pm** |
| **Venue** | : | **Classroom: 208** |
| **Course Code & Title** | : | **BTCOC702 Cloud Computing** |
| **Learning Strategy** | : | **Online Platforms demonstration** |
| **Topic** | : | **AWS (Amazon Web Services)** |

- **Objectives of Innovative Practices:**
  - Students will be able to understand working of the Cloud Computing platform
  - Student will be able to implement & use AWS platform
- **Activity Details**: following topics are covered
  1. What is Cloud Computing Platform?
  2. Features of Amazon Web Services
  3. Types of Services
  4. How to create virtual Image using platform

**How we implemented online platform demonstration:**

1. Open the Amazon Web Services (AWS) home page.
2. Choose Create an AWS Account. Note: If you signed in to AWS recently, choose Sign in to the Console.
3. In Root user email address, enter your email address, edit the AWS account name, and then choose Verify email address.
4. Enter the Username & Password for login
5. After that you can create virtual image

- **Committee Members:**
  Dr. Makarand Shahade, Convener
  Prof. Kiran Somwanshi, Coordinator

- **Total No. of Student Turned up:**
  60 students participated from BTech. Computer Engineering Department.
  Total Percentage of Students Present = 86.95%
- **Outcome of Activity:**

1. Students understood basic of AWS platform
2. Students learn & create the AWS account using AWS framework.

**Goal:**

The students will be able to develop Virtual Inage using AWS account

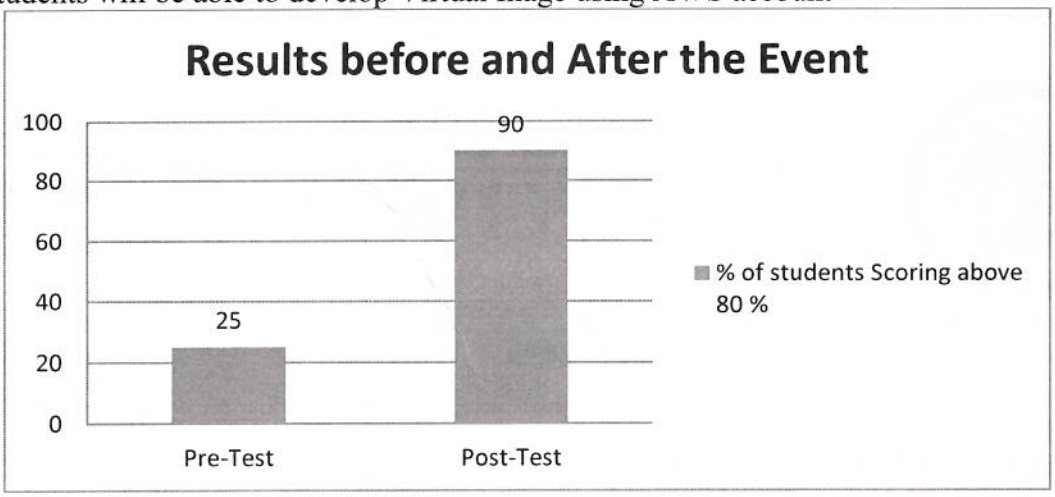



**Fig. Feedback of Event After & Before Test**

| PO/PSO MAPPED | JUSTIFICATION |
|---|---|
| PO1 | Students will describes basics Features of AWS |
| PO2 | Student will analyze Storage, types of virtualization & services of Amazon Web services. |
| PO3 | Student will design the Compute Services, Storage Services, Communication Services and Additional Services of AWS |
| PO5 | Students will use the tools of AWS for creating applications |
| PSO1 | Student will develop an ability to understand & analyze the concept of AWS Services |
| PSO2 | Student will provide computer based solutions for real world problem by applying AWS Services & deployment model . |
| PSO3 | The ability to employ modern computer tools and technologies using different features of cloud computing with AWS. |

Rubrics for Attainment:

| Attainment Level | Description |
|---|---|
| Level 1 : Low | 60% of students scoring more than set attainment level in the Poll. |
| Level 2 : Medium | 70% of students scoring more than set attainment level in the Poll. |
| Level 3 : High | 80% of students scoring more than set attainment level in the Poll. |

**Overall Attainment:** Level 3 (high)

**PO's attained:** PO:1,2,3,5 PSO 1,2,3

**Event Coordinator**
**Prof. Kiran Somwanshi**

**HOD**
**Dr. Makarand Shahade**

23-24/15

Shri Vile Parle Kelavani Mandal's

# Institute of Technology, Dhule

Approved by AICTE & Affiliated to DBATU

## DEPARTMENT OF COMPUTER ENGINEERING

**A.Y 2023-24**

| | | |
|---|---|---|
| **Name of Event** | : | **INNOVATIVE PRACTICES** |
| **Date** | : | **18/11/2023** |
| **Time** | : | **12:00PM** |
| **Venue** | : | **Class room : 208** |
| **Course Code & Title** | : | **BTHM505B Business Communication** |
| **Learning Strategy** | : | **Brainstorming Session** |
| **Topic** | : | **Role of Intercultural Communication at Workplace** |

**Brainstorming Session:**

Brainstorming Session encourages participation, it also promotes involvement and active learning.

**Benefits/ Objectives of the session:**

**Problem Identification:** To identify potential challenges, risks, or obstacles that may arise and to devise strategies to mitigate them.

**Problem Solving:** The objective could be to generate creative solutions to a specific problem or challenge faced by the team or organization.

**Knowledge Sharing:** To share expertise, experiences, and insights among team members to collectively generate ideas and solutions.

**Goal Setting:** To set specific, measurable, achievable, relevant, and time-bound (SMART) goals for the team or organization and brainstorm strategies for achieving them.

**Team Building:** To foster collaboration, communication, and teamwork among team members by engaging them in a creative and open discussion.

**Innovation:** To generate new ideas, concepts, or products that could lead to innovation within the company or industry.

**Course Outcome:**

**C505.2:** To identify Intercultural Communication, Non-verbal Communication to elucidate translations as problematic discourse.

**Session Objective:**

To explore the importance of intercultural communication in diverse workplace environment.

**Reason for this topic:**

- Intercultural communication seems to be challenging at workplace.
- For effective communication right understanding of Intercultural communication is required
- Team goals or Organizational Objectives can easily be achieved through right Intercultural communication
- It fosters understanding, collaboration, and productivity in diverse workplaces

**Methodology/Instructions:**

**1. Introduction (5 minutes):**

Start the session by providing a brief overview of intercultural communication and its significance in today's globalized world. Emphasize how effective intercultural communication fosters understanding, collaboration, and productivity in diverse workplaces.

**2. Brainstorming (20 minutes):**

Divide participants into small groups of 3-5 individuals. Assign each group a specific aspect or scenario related to intercultural communication in the workplace. Examples could include:

- Communication barriers faced by multicultural teams
- Benefits of cultural diversity in decision-making processes
- Strategies for resolving conflicts arising from cultural differences
- Importance of non-verbal communication cues in cross-cultural interactions

Instruct each group to brainstorm ideas, solutions, and insights related to their assigned aspect. Encourage them to think creatively and draw from personal experiences or observations.

**3. Group Discussion (15 minutes):**

After the brainstorming session, reconvene as a whole group. Invite each group to share their ideas and insights with the rest of the participants. Use the whiteboard or flip chart to capture key points and common themes emerging from the discussions.

**4. Reflection and Analysis (10 minutes):**

Facilitate a reflective discussion on the importance of intercultural communication in the workplace. Prompt participants to consider:

- How does effective intercultural communication contribute to organizational success?
- What are the potential challenges or pitfalls of intercultural communication, and how can they be addressed?
- How can individuals and organizations promote a culture of inclusivity and respect for diverse perspectives?

**5. Action Planning (10 minutes):**

Encourage participants to identify specific actions or strategies they can implement to enhance intercultural communication within their teams or organizations. Encourage them to set SMART goals and establish accountability mechanisms to track progress.

**6. Conclusion (5 minutes):**

Summarize the key takeaways from the brainstorming session and emphasize the importance of ongoing efforts to improve intercultural communication skills. Thank the participants for their contributions and encourage them to apply the insights gained in their daily interactions.

**Optional:**

Additional elements be incorporated such as role-playing exercises, case studies, or multimedia resources to further illustrate the concepts discussed during the brainstorming session. Additionally, consider assigning a facilitator or note-taker to capture important points and action items for future reference.

**Committee Members:** Dr. Rajiv Junne, Course Coordinator

**Total No. of Student Benefited:**

68 students participated.

**Learning Outcomes of Activity:**

**Increased Awareness:** Participants develop a deeper understanding of the importance of intercultural communication in today's diverse workplace environments. They recognize how cultural differences impact communication styles, norms, and perceptions.

**Identification of Challenges**: Through group discussions and brainstorming, participants identify common challenges and barriers to effective intercultural communication, such as language barriers, cultural stereotypes, and misinterpretation of non-verbal cues.

**Recognition of Benefits:** Participants acknowledge the benefits of embracing cultural diversity in the workplace, such as enhanced creativity, innovation, and problem-solving capabilities. They understand that diverse perspectives contribute to more robust decision-making processes.

**Generation of Strategies:** The brainstorming session generates a variety of strategies and approaches to improve intercultural communication within teams and organizations. These may include cross-cultural training programs, mentorship initiatives, creation of inclusive communication channels, and fostering a culture of empathy and respect.

**Action Planning:** Through collaborative brainstorming, participants develop actionable plans and goals to implement within their teams or organizations. These may involve setting up cross-cultural communication workshops, establishing buddy systems for cultural exchange, or integrating intercultural competence into performance evaluations.

**Commitment to Inclusivity:** The brainstorming activity fosters a shared commitment among participants to promote inclusivity and diversity in their workplace cultures. They understand that creating an environment where everyone feels valued and respected is essential for organizational success.

**Continued Learning:** Participants express a desire for ongoing learning and development opportunities in intercultural communication. They recognize that building cultural competence is a lifelong journey that requires curiosity, openness, and a willingness to learn from others.

Overall, the brainstorming activity serves as a catalyst for raising awareness, fostering dialogue, and inspiring concrete actions to enhance intercultural communication within teams and organizations. It lays the groundwork for creating more inclusive, collaborative, and culturally competent work environments.

**Pre-implementation Reflection:**

- Hesitation to participate.
- Less confidence.

**Post Implementation reflection:**

- Students learned to collaborate, coordinate to be a part of team.
- They delved deeper the concept thoroughly.

- Their feedback reflected that they have understood the concept.

| Learning Outcomes/ Program Outcomes | PO8 | PO9 | PO10 | PO12 |
|---|---|---|---|---|
| *LO:* The students will be able to discuss about the Role of Intercultural Communication at Workplace | 1 | 3 | 3 | 3 |

POs Mapped: PO8, PO9, PO10, PO12

**JUSTIFICATION FOR MAPPING**

| PO/PSO MAPPED | JUSTIFICATION |
|---|---|
| PO8 | **Ethics:** Participants apply ethical principles and remain committed to professional ethics and responsibilities and norms during the activity. |
| PO9 | **Individual and team work:** Participants function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings during the activity. |
| PO10 | **Communication:** Participants communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions during the activity. |
| PSO12 | **Life-long learning:** Participants recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change during the activity. |

PO Attainment:

Rubrics for Attainment:

| Attainment Level | Description |
|---|---|
| Level 1 : Low | 60% of students scoring more than set attainment level in the Poll. |
| Level 2 : Medium | 70% of students scoring more than set attainment level in the Poll. |
| Level 3 : High | 80% of students scoring more than set attainment level in the Poll. |

**Overall Attainment: Level 3(high)**

**PO's Attained:** PO8, PO9, PO10, PO12

**References:**

1. International Business Communication by Aradhana Malik, IIT Kharagpur

2. Sharma, Sangeeta and Binod Mishra, Communication Skills for Engineers and Scientists, PHI Learning Pvt. Ltd., New Delhi.

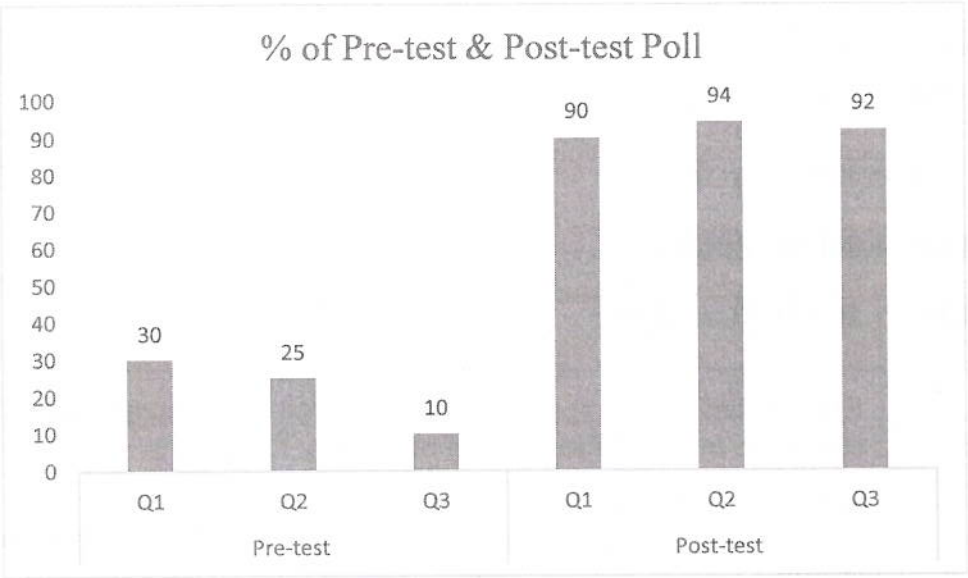



**Fig. PreTest and PostTest Poll Before & After of Event**

**Questionnaire for Test:** (On the scale of 1 – 3. 1-Low;3 High)
Q1) Do you know the concept of intercultural Communication?
Q2) Do you know the significance of intercultural Communication?
Q3) Are you aware about the role of interpersonal Communication at workplace?

**Dr. Rajiv Junne**
**Session Coordinator**

**Dr. Makarand Shahade**
**HOD, Computer Engineering**

23-24 (16)

**ShriVile Parle Kelavani Mandal's**

# Institute of Technology, Dhule

Approved by AICTE & Affiliated to DBATU

## DEPARTMENT OF COMPUTER ENGINEERING

**A.Y 2023-24**

| | | |
|---|---|---|
| **Name of Event** | : | **INNOVATIVE PRACTICES** |
| **Dates** | : | **1st April 2024** |
| **Time** | : | **05:00 pm** |
| **Venue** | : | **Classroom: 209** |
| **Course Code & Title** | : | **BTCOC603 Machine Learning** |
| **Learning Strategy** | : | **Crossword Puzzle** |
| **Topic** | : | **Machine Learning Jargons** |

**Crossword Puzzle:**

Crossword puzzle is a suitable game used to help students to master vocabulary easily by giving opportunity for them to memorize as much as possible vocabulary, for there will be many words given as cues that should be understood by them to be able to fill the squares with the suitable words too.

**The benefit of the Crossword Puzzle:**

- The crossword puzzle is a kind of word game that can help students to extend their vocabulary knowledge.
- From exam point of view it plays an important role in solving multiple-choice type questions.
- It can be useful for students to memorize terminology, definitions, spelling, and pairing key concepts.
- It helps students to Improve Cognitive Abilities.
- Crosswords for students can improve their vocabulary, analytical skills, and memory.

**Course Outcome:**

***CO2:*** *To recognize the characteristics of machine learning that make it useful to real-world problems and Use different linear methods for regression and classification with their optimization through different regularization techniques.*

**Goal:**

The students will be able to improve their machine-learning vocabulary

**Reason for choosing the particular topic (Method):**
First, crossword puzzles motivate students to remember and understand a word's meaning. Second, students needed to understand the words given in each clue in addition to the word in the grid, resulting in increased vocabulary. In addition, a crossword puzzle is used to empower, engage, and stimulate a classroom by putting students at the Centre of the learning process.

**How we implemented Crossword Puzzle:**

- At the end of the chapter or module faculty developed a crossword grid with clues using the online platform.
- A crossword puzzle of 20 to 25 clues was given to the students.
- The students discussed with their peers and completed the puzzle.
- After completion of the puzzle activity, the faculty member discussed the answer to make the students aware of the correct answer.

**Committee Members:** Prof. Ashish Awate, Coordinator
Dr. Makarand Shahade, Convener

**Total No. of Student Benefited:**

61 students participated from the Final Year B. Tech Computer Engineering Department.

**Learning Outcomes of Activity:**
The students were able to improve their machine-learning concepts, vocabulary, analytical skills, and memory.

**Pre-implementation Reflection:**

- Few students found it difficult to complete the puzzle
- Students just might not have the necessary knowledge to complete crossword puzzles.

**Post Implementation reflection:**

- The crossword puzzle activity was very interesting and students were able to identify the appropriate jargon in machine learning.
- Vocabulary of the terms related to machine learning is improved.
- Student's understanding of basic machine learning concepts is improved.
- This activity helps to test the level of understanding of the students.

| Learning Outcomes/ Program Outcomes | PO1 | PO2 | PO3 | PO9 | PO10 | PO12 |
|---|---|---|---|---|---|---|
| *LO1:* To Recognize the characteristics of machine learning that make it useful to real-world problems. | 2 | 2 | 2 | 2 | 1 | 2 |

POs Mapped: PO1, PO2, PO3, PO10, PO12

**JUSTIFICATION FOR MAPPING**

| PO/PSO MAPPED | JUSTIFICATION |
|---|---|
| PO1 | Students will be able to understand the concept of characteristics of machine learning |
| PO2 | Students will be able to choose the appropriate machine learning type while approaching the problem. |
| PO3 | Students will be able to apply machine learing concept while building model. |
| PO10 | Students communication skills will be improved as they discuss the answers with peers |
| PO12 | The problem-solving skill earned through this activity helps the students in motivating life long learning. |

PO Attainment:

Rubrics for Attainment:

| Attainment Level | Description |
|---|---|
| Level 1 : Low | 60% of students scoring more than set attainment level in the Poll. |
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| Level 3 : High | 80% of students scoring more than set attainment level in the Poll. |

**Overall Attainment: Level 3(high)**

**PO's Attained:** PO1, PO2, PO3, PO10, PO12

**References: https://puzzlemaker.discoveryeducation.com/criss-cross**

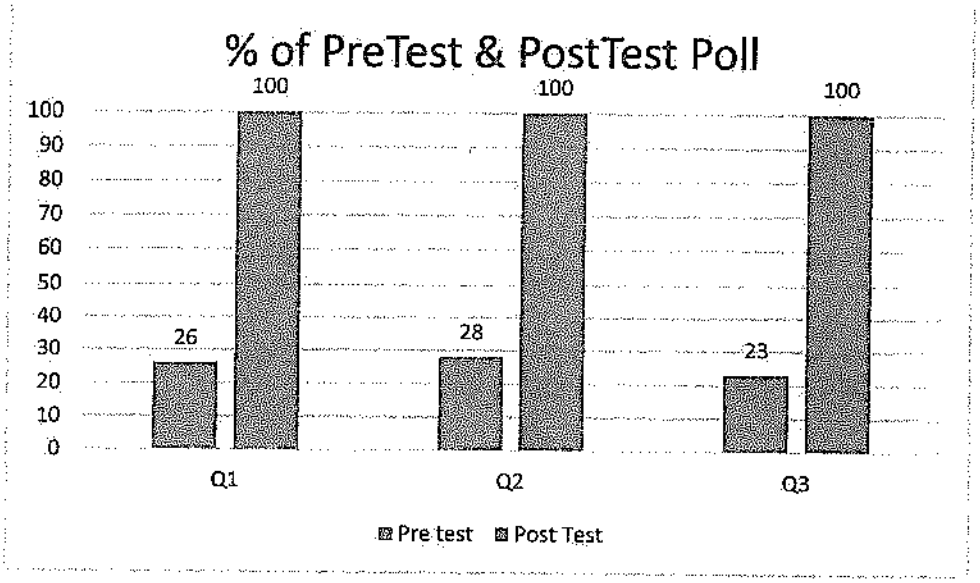
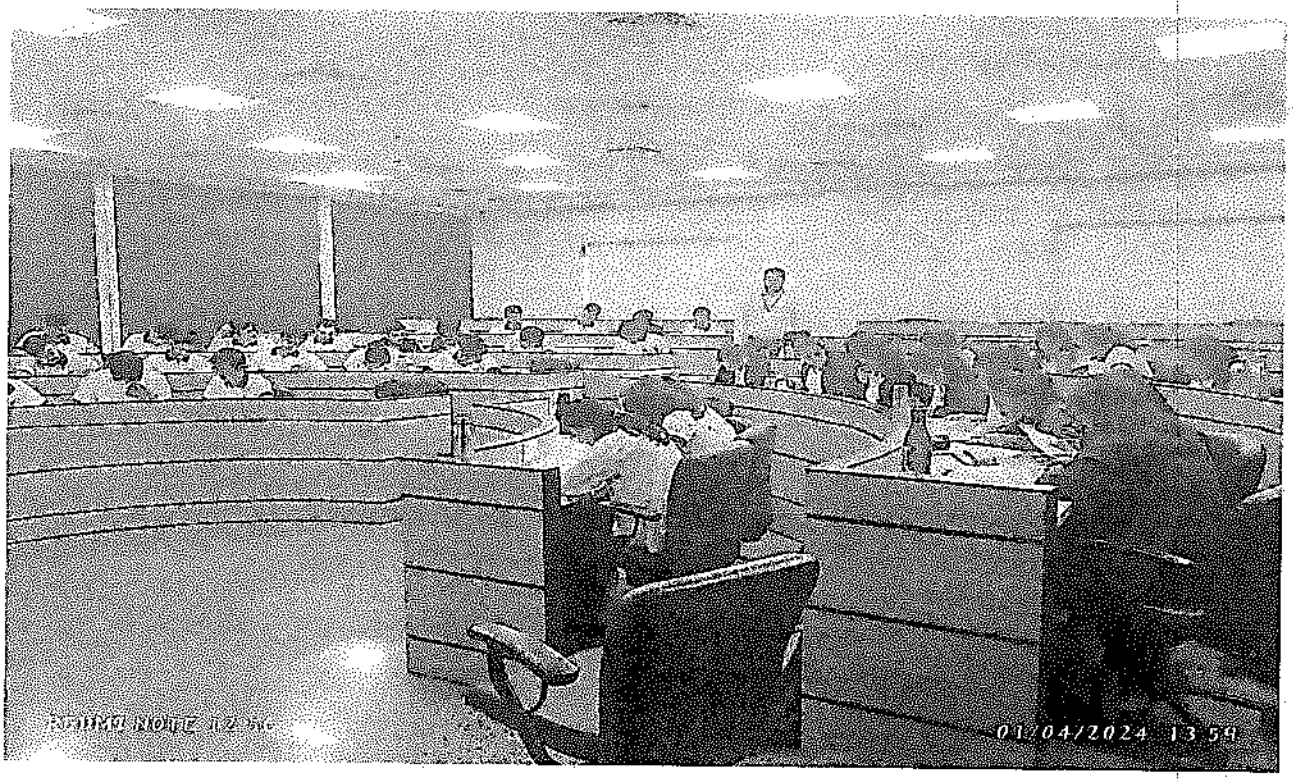
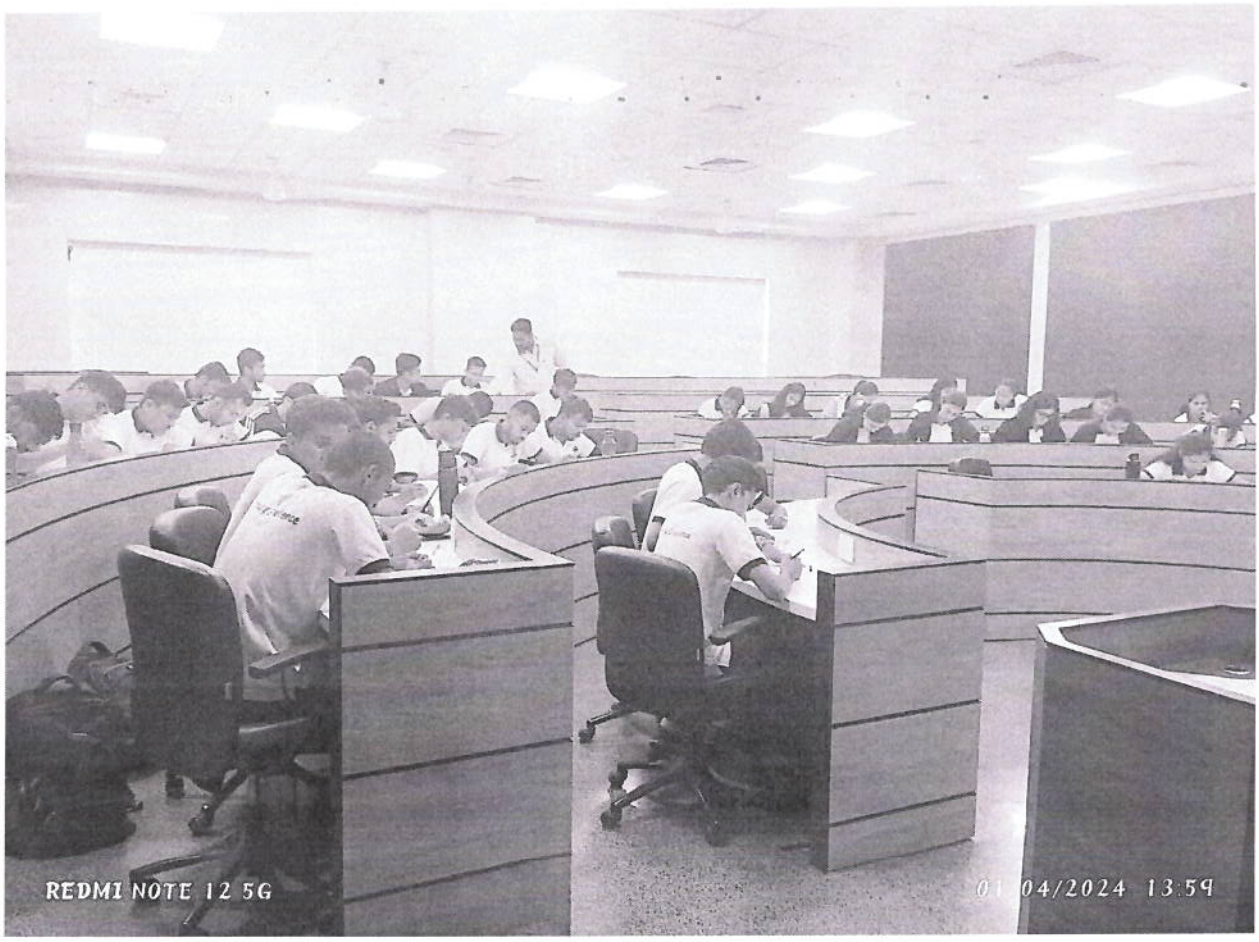



**Fig. PreTest and PostTest Poll Before & After of Event**

**Photos of Activity**






**Prof. Ashish Awate**
**Event Coordinator**

Shri Vile Parle Kelavani Mandal's DHULE Institute of Technology

**Dr. Makarand Shahade**
**HOD, Computer Engineering**

23-24 (17)

Shri Vile Parle Kelavani Mandal's

# Institute of Technology, Dhule

Approved by AICTE & Affiliated to DBATU

## DEPARTMENT OF COMPUTER ENGINEERING

**A.Y 2023-24**

| | | |
|---|---|---|
| **Name of Event** | : | **INNOVATIVE PRACTICES** |
| **Dates** | : | **2nd April 2024** |
| **Time** | : | **05:00 pm** |
| **Venue** | : | **Classroom: 209** |
| **Course Code & Title** | : | **BTCOC603 Machine Learning** |
| **Learning Strategy** | : | **Crossword Puzzle** |
| **Topic** | : | **Machine Learning Jargons** |

**Crossword Puzzle:**

Crossword puzzle is a suitable game used to help students to master vocabulary easily by giving opportunity for them to memorize as much as possible vocabulary, for there will be many words given as cues that should be understood by them to be able to fill the squares with the suitable words too.

**The benefit of the Crossword Puzzle:**

- The crossword puzzle is a kind of word game that can help students to extend their vocabulary knowledge.
- From exam point of view it plays an important role in solving multiple-choice type questions.
- It can be useful for students to memorize terminology, definitions, spelling, and pairing key concepts.
- It helps students to Improve Cognitive Abilities.
- Crosswords for students can improve their vocabulary, analytical skills, and memory.

**Course Outcome:**

***CO2:*** *To recognize the characteristics of machine learning that make it useful to real-world problems and Use different linear methods for regression and classification with their optimization through different regularization techniques.*

**Goal:**

The students will be able to improve their machine-learning vocabulary

**Reason for choosing the particular topic (Method):**
First, crossword puzzles motivate students to remember and understand a word's meaning. Second, students needed to understand the words given in each clue in addition to the word in the grid, resulting in increased vocabulary. In addition, a crossword puzzle is used to empower, engage, and stimulate a classroom by putting students at the Centre of the learning process.

**How we implemented Brainstorming:**

- At the end of the chapter or module faculty developed a crossword grid with clues using the online platform.
- A crossword puzzle of 20 to 25 clues was given to the students.
- The students discussed with their peers and completed the puzzle.
- After completion of the puzzle activity, the faculty member discussed the answer to make the students aware of the correct answer.

**Committee Members:** Prof. Ashish Awate, Coordinator
Dr. Makarand Shahade, Convener

**Total No. of Student Benefited:**

61 students participated from the Final Year B. Tech Computer Engineering Department.

**Learning Outcomes of Activity:**
The students were able to improve their machine-learning concepts, vocabulary, analytical skills, and memory.

**Pre-implementation Reflection:**

- Few students found it difficult to complete the puzzle
- Students just might not have the necessary knowledge to complete crossword puzzles.

**Post Implementation reflection:**

- The crossword puzzle activity was very interesting and students were able to identify the appropriate jargon in machine learning.
- Vocabulary of the terms related to machine learning is improved.
- Student's understanding of basic machine learning concepts is improved.
- This activity helps to test the level of understanding of the students.

| Learning Outcomes/ Program Outcomes | PO1 | PO2 | PO3 | PO9 | PO10 | PO12 |
|---|---|---|---|---|---|---|
| *LO1:* To Recognize the characteristics of machine learning that make it useful to real-world problems. | 2 | 2 | 2 | 2 | 1 | 2 |

POs Mapped: PO1, PO2, PO3, PO10, PO12

**JUSTIFICATION FOR MAPPING**

| PO/PSO MAPPED | JUSTIFICATION |
|---|---|
| PO1 | Students will be able to understand the concept of characteristics of machine learning |
| PO2 | Students will be able to choose the appropriate machine learning type while approaching the problem. |
| PO3 | Students will be able to apply machine learing concept while building model. |
| PO10 | Students communication skills will be improved as they discuss the answers with peers |
| PO12 | The problem-solving skill earned through this activity helps the students in motivating life long learning. |

PO Attainment:

Rubrics for Attainment:

| Attainment Level | Description |
|---|---|
| Level 1 : Low | 60% of students scoring more than set attainment level in the Poll. |
| Level 2 : Medium | 70% of students scoring more than set attainment level in the Poll. |
| Level 3 : High | 80% of students scoring more than set attainment level in the Poll. |

**Overall Attainment: Level 3(high)**

**PO's Attained:** PO1, PO2, PO3, PO10, PO12

**References:** **https://puzzlemaker.discoveryeducation.com/criss-cross**

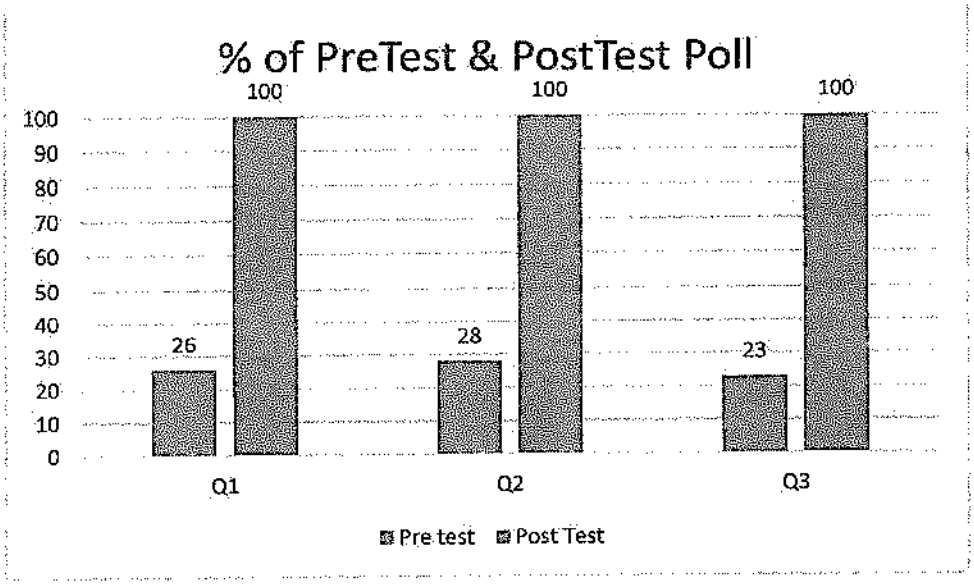
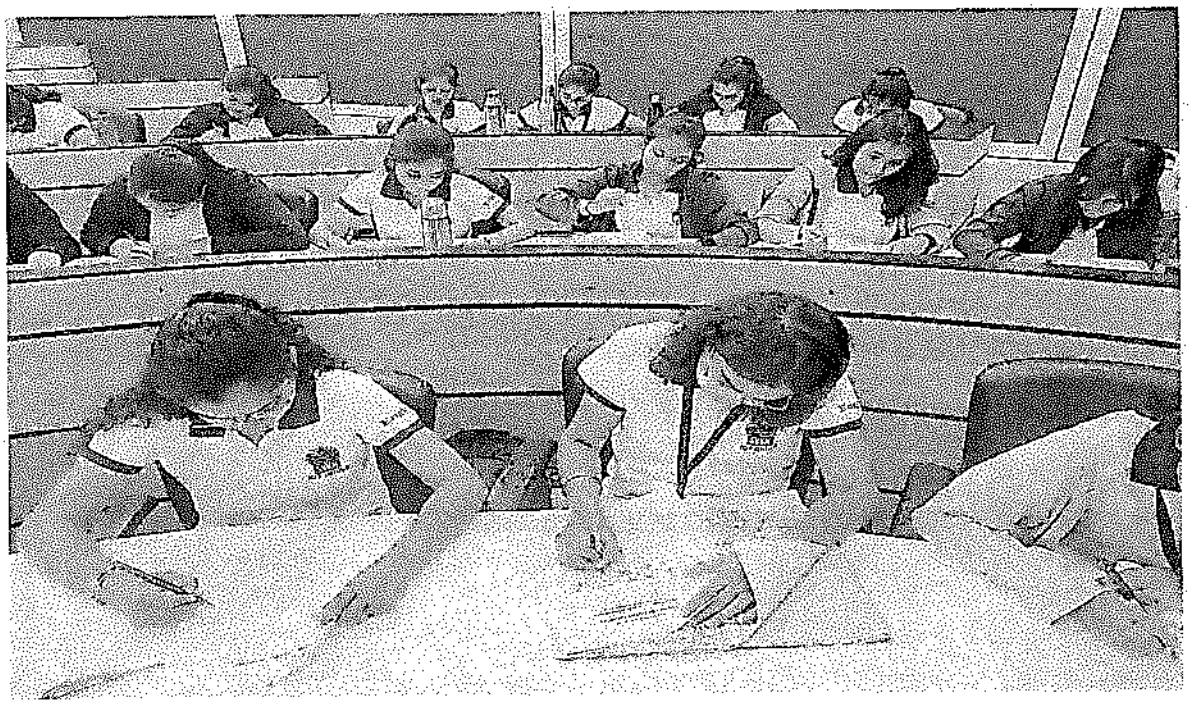
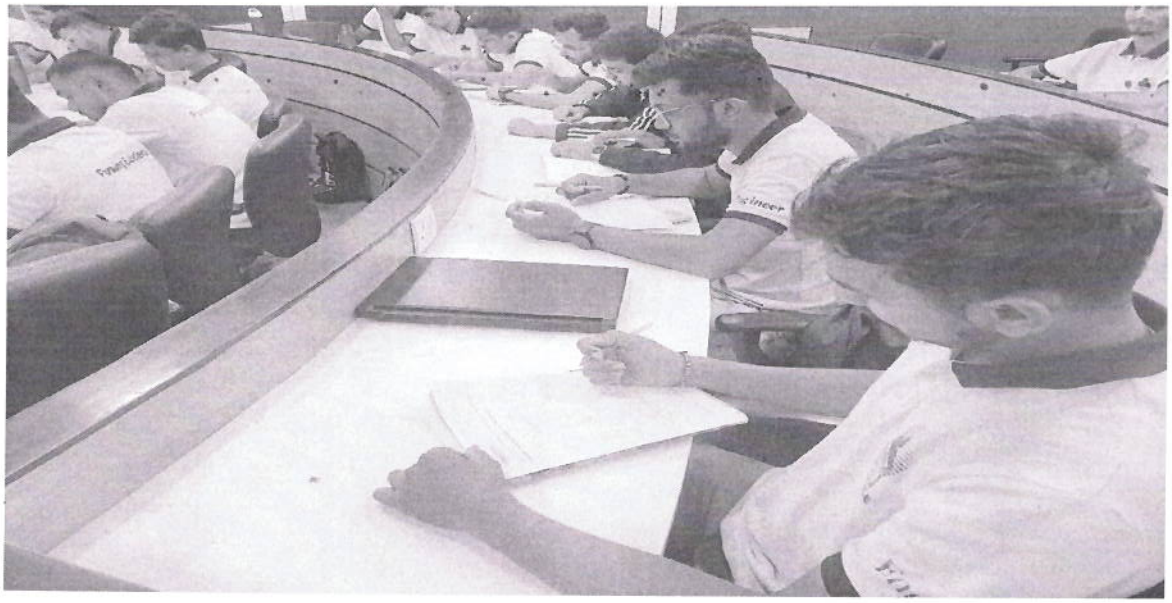
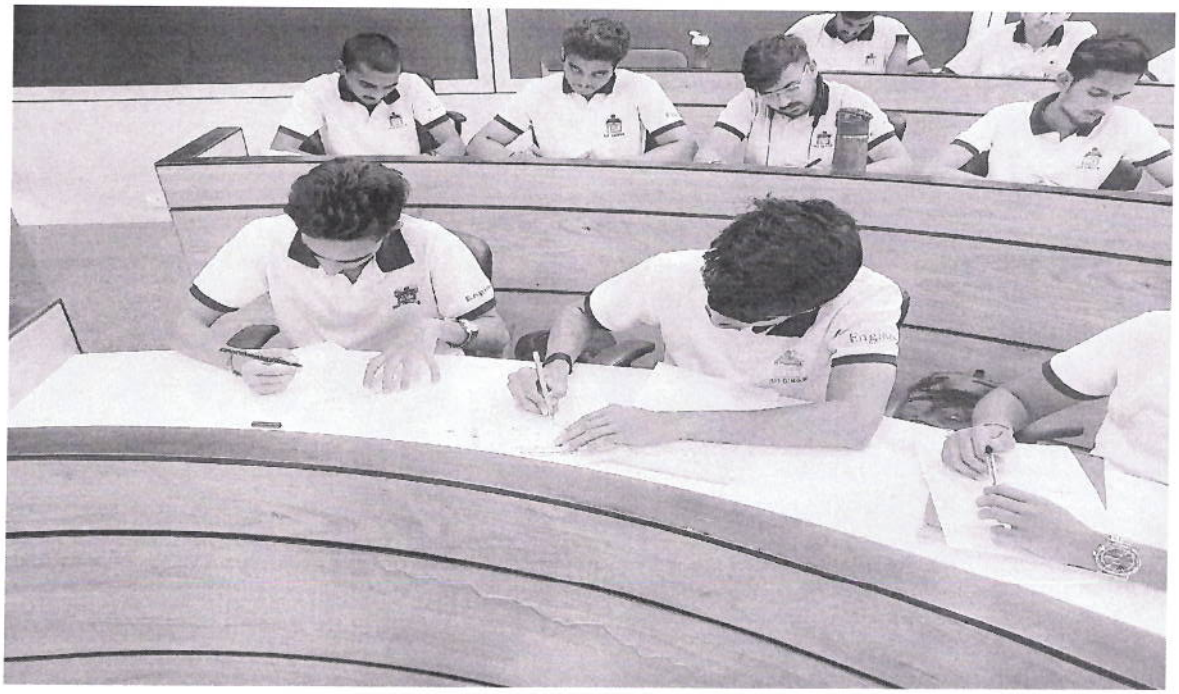



**Fig. PreTest and PostTest Poll Before & After of Event**

**Photos of Activity**



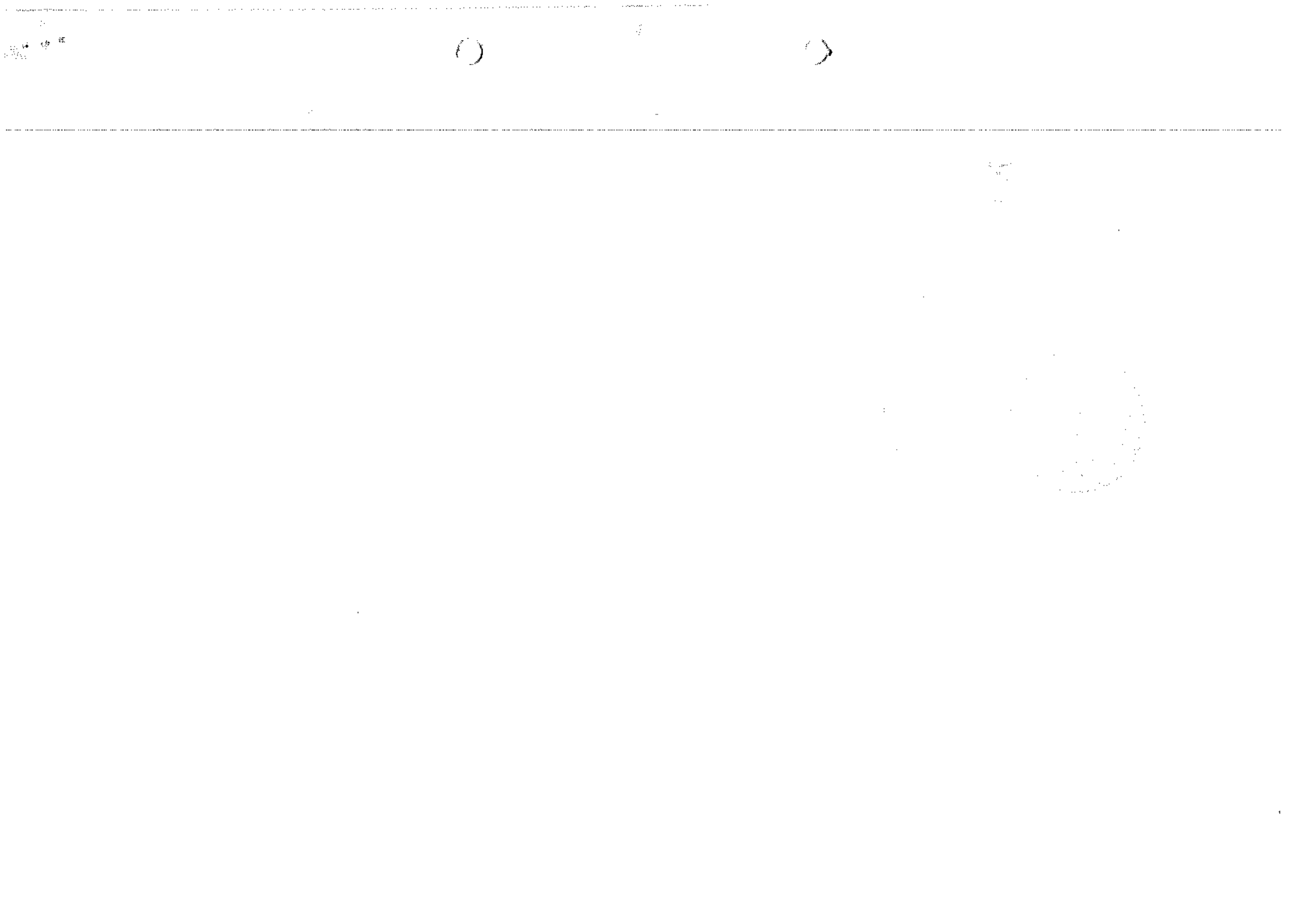




**Prof. Ashish Awate**
**Event Coordinator**

Shri Vile Parle Kelavani Mandal's Institute of Technology DHULE

**Dr. Makarand Shahade**
**HOD, Computer Engineering**



Shri Vile Parle Kelavani Mandal's

# Institute of Technology, Dhule

Approved by AICTE & Affiliated to DBATU

## DEPARTMENT OF COMPUTER ENGINEERING

A.Y 2023-24

| | | |
|---|---|---|
| **Name of Event** | : | **INNOVATIVE PRACTICES** |
| **Dates** | : | **12th April 2024** |
| **Time** | : | **11:00 am** |
| **Venue** | : | **Class Room 208** |
| **Course Code & Title** | : | **BTHM402 Universal Human Values-II** |
| **Learning Strategy** | : | **Brain Storming** |
| **Topic** | : | **Self-Exploration, Prevention of Food Wastage** |

Brain Storming:

Brainstorming is a group creativity technique that is often used to find a solution to a specific problem by gathering and recording new ideas from team members

**Course Outcome:**

***CO1:*** *To become more aware of themselves, and their surroundings through self-exploration*

**Committee Members:** Mr. Khalid Alfatmi, Coordinator.

**Total No. of Student Benefited:**

Total 38 students participated from S.Y. B. Tech Computer Engineering Department.

**Learning Outcomes of Activity:**

The students will come up with different ideas to overcome wastage of food

**Pre-implementation Reflection:**

- Students were not aware about the quantity of food waste across the globe, the environmental hazards due to it and the importance of methods to avoid wasting food.

**Post Implementation reflection:**

- The students came up with atleast five different ideas to overcome wastage of food end.

| Learning Outcomes/ Program Outcomes | PO7 | PO12 |
|---|---|---|
| **TLO7:** To self-explore by understanding value education | 1 | 3 |

POs Mapped: PO7, PO12

**JUSTIFICATION FOR MAPPING**

| PO/PSO MAPPED | JUSTIFICATION |
|---|---|
| PO7 | Student will understand the importance of professional engineering solutions in societal and environmental contexts |
| PO12 | Student will adapt to self-exploration in every situation and adhere to natural acceptance |

PO Attainment:

Rubrics for Attainment:

| Attainment Level | Description |
|---|---|
| Level 1 : Low | 60% of students scoring more than set attainment level in the Poll. |
| Level 2 : Medium | 70% of students scoring more than set attainment level in the Poll. |
| Level 3 : High | 80% of students scoring more than set attainment level in the Poll.. |

**Overall Attainment: Level 3(high)**

**PO's Attained:** PO7, PO12

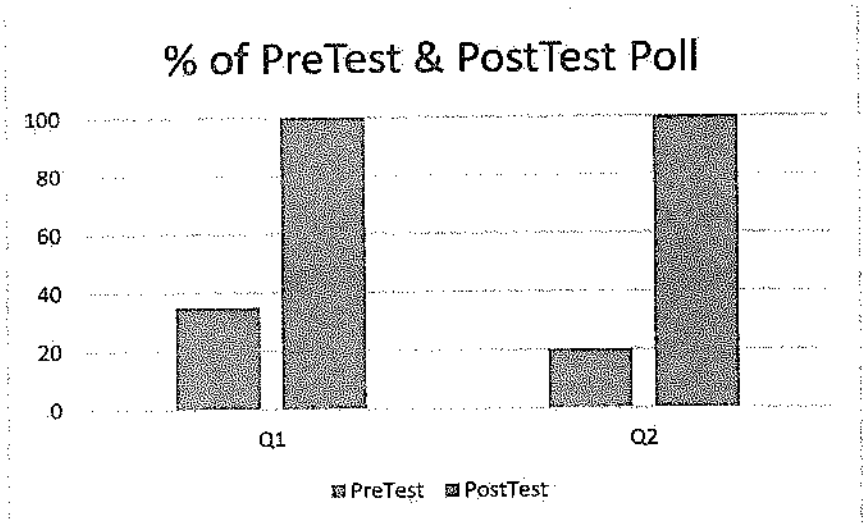
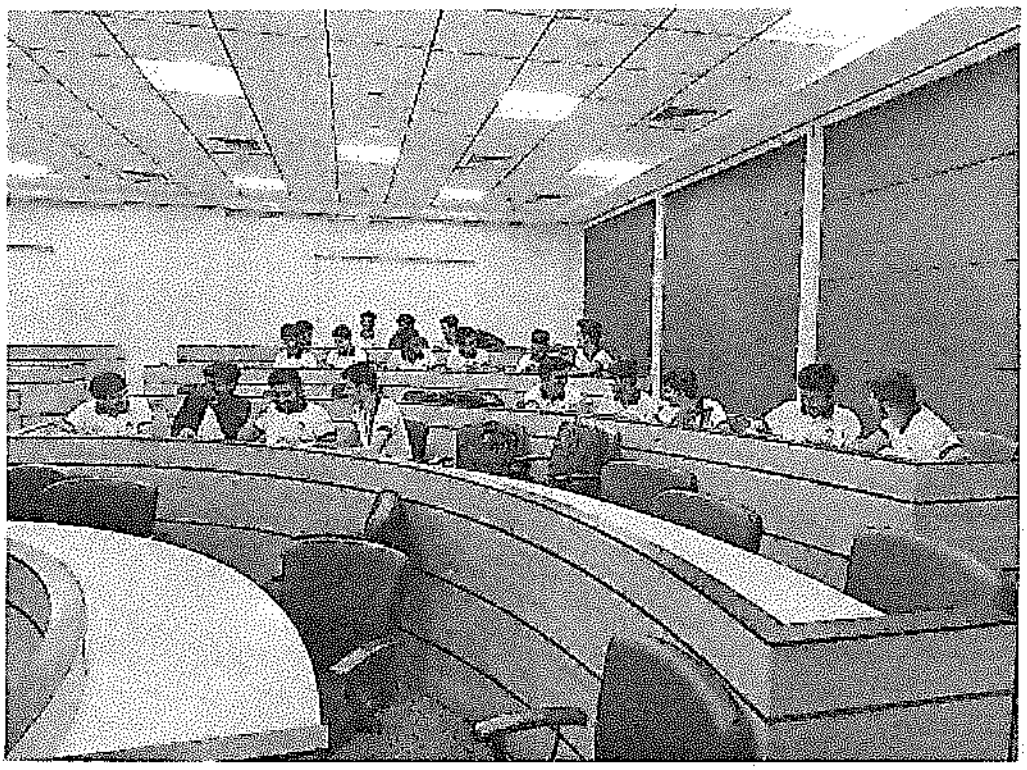
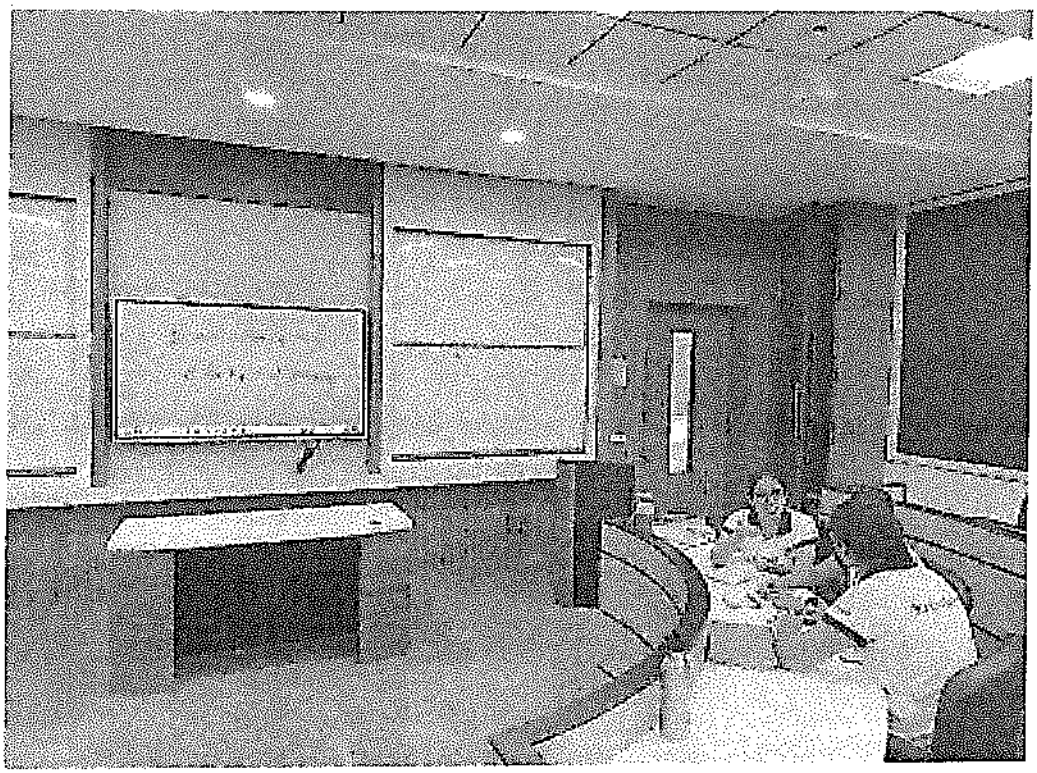



**Fig. PreTest and PostTest Poll Before & After the event**

**Photographs of Event:**





/ /

Q. What behaviour and attitude ~~is required to~~ change is needed to prevent food wastage.

→

- Always take required amount of food in your plate to avoid wastage.
- If we have leftovers in our home so we can give it to needy people.
- Never go ~~in~~ to supermarket for grocery shopping empty stomach. Because it leads to buy unneccesary stuffs.
- Bring fresh vegetables when required so wastage will be reduced.

Yashashwi Farakh

Khalid Alfatmi
Event Coordinator

Dr. Makarand Shahade
HOD, Computer Engineering

Shri Vile Parle Kelavani Mandal's

# Institute of Technology, Dhule

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**DEPARTMENT OF COMPUTER ENGINEERING**

**A.Y 2023-24**

| | | |
|---|---|---|
| **Name of Event** | : | **INNOVATIVE PRACTICES** |
| **Dates** | : | **12rd April 2024** |
| **Time** | : | **03:00pm to 05:00pm** |
| **Venue** | : | **Class room : 208** |
| **Course Code & Title** | : | **BTHM605 (B) & Employability and Skill Development** |
| **Learning Strategy** | : | **Group Discussion** |
| **Recourse person** | : | **Prof. Rinku Sharma** |

**Group Discussion**

A group discussion (GD) is a technique for exchanging ideas and viewpoints. It is commonly implemented in professional or educational contexts. The main goal of a group discussion is to provide each participant with an opportunity to express their thoughts and ideas on a particular topic, as well as to encourage listening and learning from other members of the group. Group talks may be helpful for idea generation, information sharing, connection development, and issue-solving.

**Objectives of Online Compiler:**

- Encourages the development of Critical Thinking
- Enhances Communication
- Enhances Problem Solving Skills
- Promotes Involvement of the Participants
- Helps in gaining Depth of Knowledge
- Helps to Boost Confidence

- **Activity Details:**
  1. The class is divided into 5 groups.
  2. Everyone is allowed to introduced themselves.
  3. The topic was explained and time was given to prepare.
  4. Open ended questions were asked to begin the discussion.
  5. Randomly opinions were put forth by the students.

**Total No. of Student Benefited:**

69 students participated from T.Y. B. Tech Computer Engineering Department.

**Learning Outcomes of Activity:**

The students were able to discuss and analyze the topics given.

**Pre-implementation Reflection:**

- Some students were not willing to participate which was actual necessary for the execution of activity.
- Less number of students was involved in the activity.

**Post Implementation reflection:**

- Students actively participated in the group discussion.
- Counter questioning was also done by the students.
- All the students enjoyed the activity.
- Students' feedback reflected that they have understood the concepts.

| 1. Learning Outcomes/ Program Outcomes | PO6 | PO8 | PO9 | PO10 | PO12 |
|---|---|---|---|---|---|
| *LO4:* The students will be able to analyze and enact the topics accordingly. | 2 | 2 | 2 | 2 | 2 |

POs Mapped: PO6, PO8, PO9, PO10, PO12.

**JUSTIFICATION FOR MAPPING**

| PO/PSO MAPPED | JUSTIFICATION |
|---|---|
| PO6 | The students able to analyze and discuss the topics given effectively. |
| PO8 | The students were able to apply ethical principles and commit to professional ethics during the discussion |
| PO9 | The students were able to function effectively as an individual, and as a member of the diverse teams. |

| | |
|---|---|
| PO10 | The students were able to communicate effectively during the activity and were able to comprehend and give effective presentations. |
| PO12 | The students were able to recognize the need for effective presentation and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change |

PO Attainment:

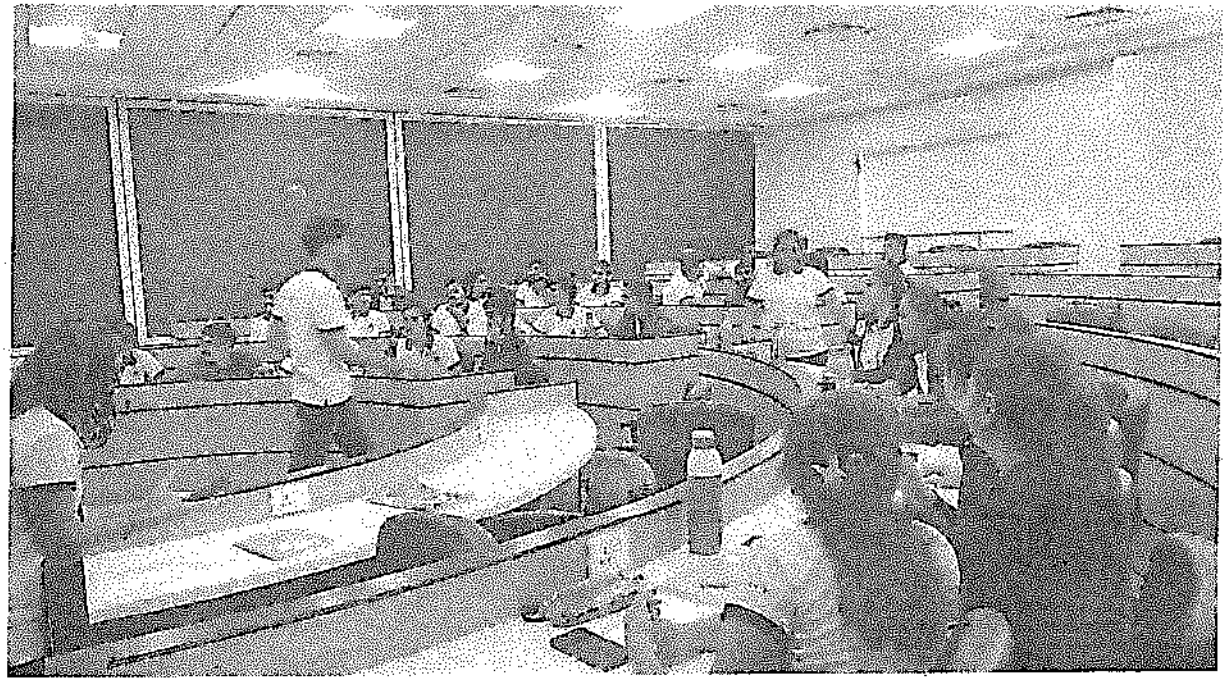
Rubrics for Attainment:

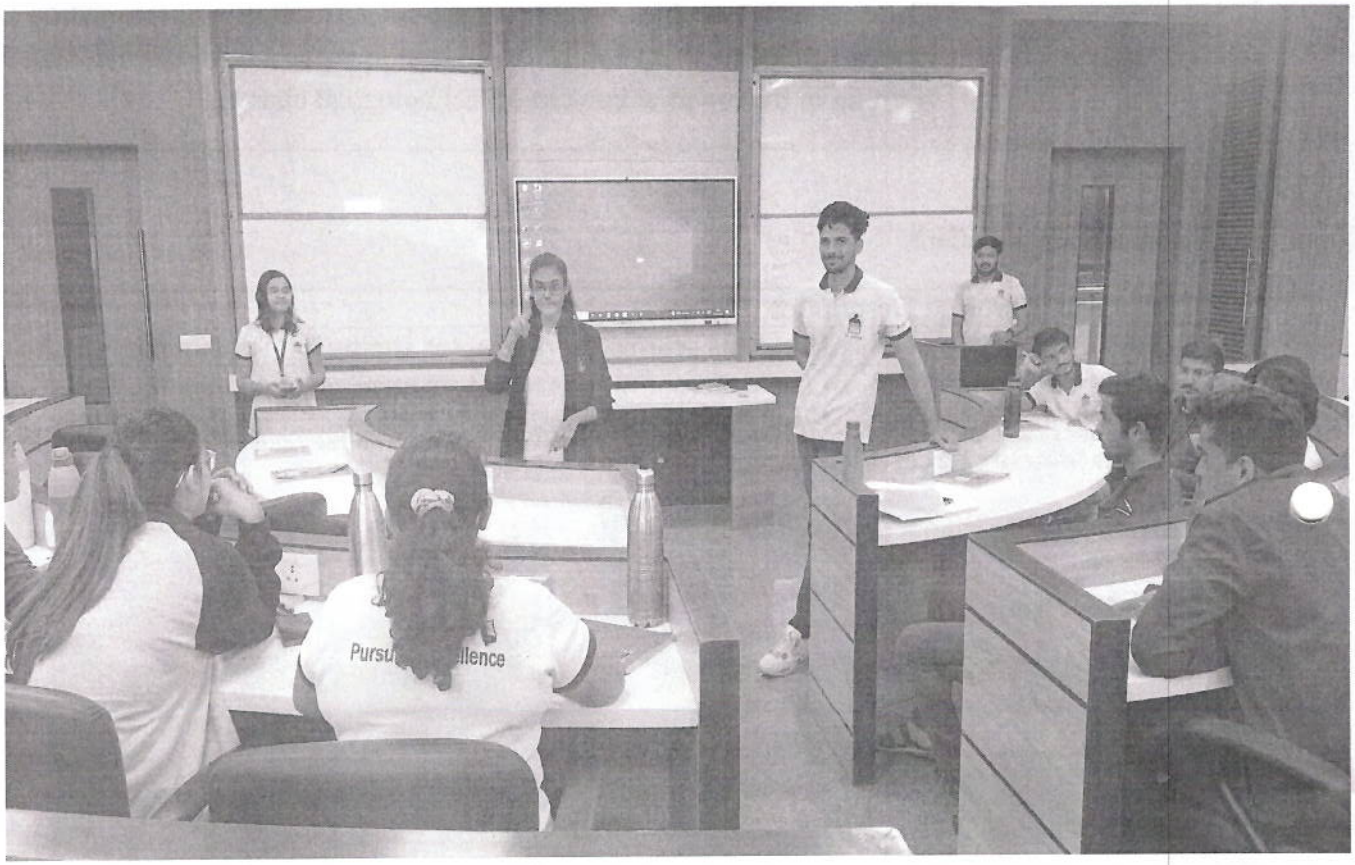
| Attainment Level | Description |
|---|---|
| Level 1 : Low | 60% of students scoring more than set attainment level in the Poll. |
| Level 2 : Medium | 70% of students scoring more than set attainment level in the Poll. |
| Level 3 : High | 80% of students scoring more than set attainment level in the Poll. |

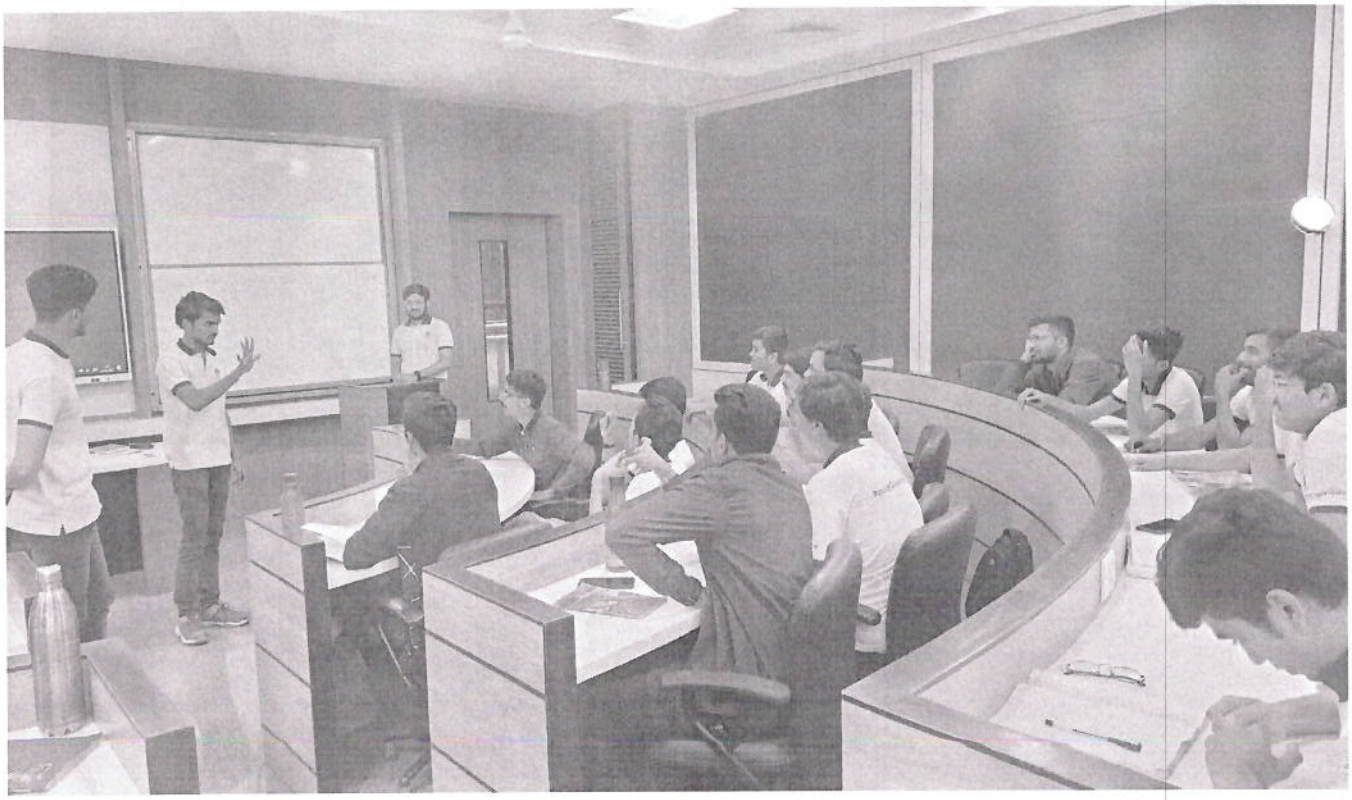
**Overall Attainment: Level 3(high)**

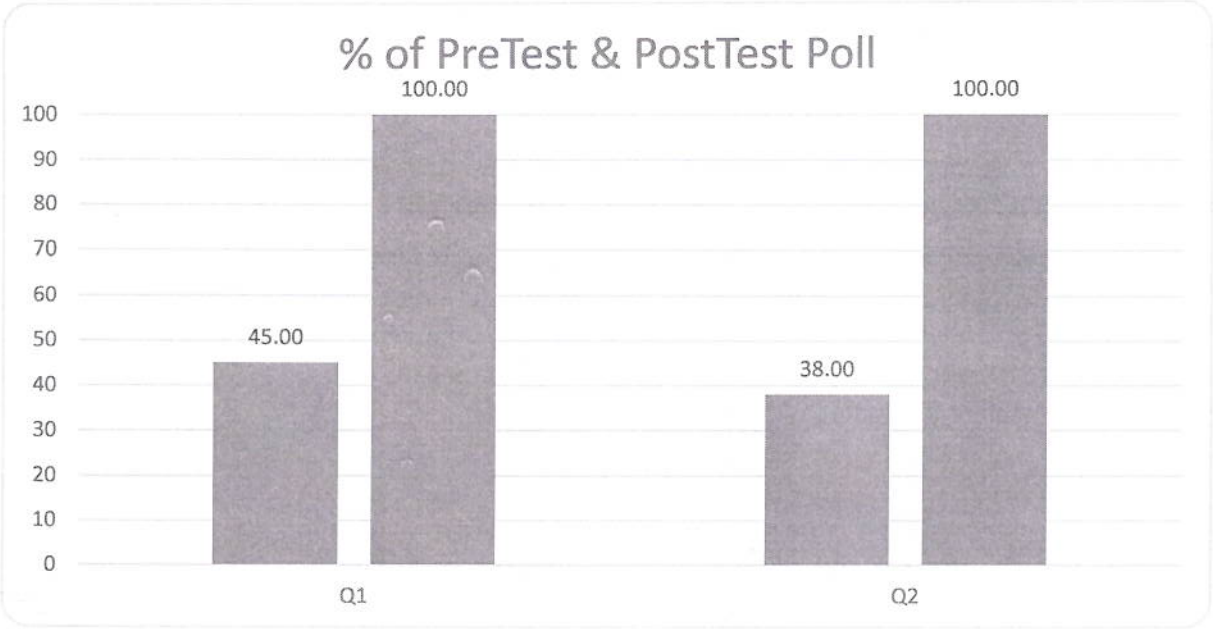
**PO's Attained:** POs Mapped: PO6,PO8,PO9,PO10,PO12.

**Photograph of Activity:**





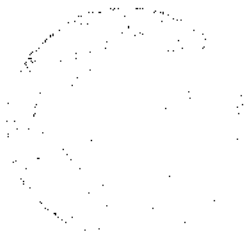





**Prof. Rinku Sharma**
**Event Coordinator**

**Dr. Makrand Shahade**
**HOD, Computer Engineering**

Shri Vile Parle Kelavani Mandal's Institute of Technology DHULE



23-24 (20)

Shri Vile Parle Kelavani Mandal's

# Institute of Technology, Dhule

Approved by AICTE & Affiliated to DBATU

**DEPARTMENT OF COMPUTER ENGINEERING**

**A.Y 2023-24**

| | | |
|---|---|---|
| **Name of Event** | : | **INNOVATIVE PRACTICES** |
| **Dates** | : | **13th April 2024** |
| **Time** | : | **05:00 pm** |
| **Venue** | : | **Classroom: 209** |
| **Course Code & Title** | : | **BTCOC601 Compiler Design** |
| **Learning Strategy** | : | **Online Platforms demonstration** |
| **Topic** | : | **Bottom-Up Parser /Shfit Reduce Parser** |

**Crossword Puzzle:**

QUIZ mentimeteis a suitable game used to help students to master vocabulary easily by giving opportunity for them to memorize as much as possible vocabulary, for there will be many words given as cues that should be understood by them to be able to fill the squares with the suitable words too.

**The benefit of the Crossword Puzzle:**

- The QUIZ mentimete is a kind of word game that can help students to extend their vocabulary knowledge.
- From exam point of view it plays an important role in solving multiple-choice type questions.
- It can be useful for students to memorize terminology, definitions, spelling, and pairing key concepts.
- It helps students to Improve Cognitive Abilities.
- QUIZ for students can improve their vocabulary, analytical skills, and memory.

**Course Outcome:**

***CO1:*** To understand Bottom up parsers, and use appropriate parser to produce parse tree representation of the input.

**Goal:**

The students will be able to compare the level of Bottom –up parser.

**Reason for choosing the particular topic (Method):**
First, QUIZ mentimete motivate students to remember and understand a word's meaning. Second, students needed to understand the words given in each clue in addition to the word in the grid, resulting in increased vocabulary. In addition, a QUIZ mentimete is used to empower, engage, and stimulate a classroom by putting students at the Centre of the learning process.

**How we implemented Brainstorming:**

- At the end of the chapter or module faculty developed a crossword grid with clues using the online platform.
- A QUIZ mentimete of 20 to 25 clues was given to the students.
- The students discussed with their peers and completed the quiz.
- After completion of the quiz activity, the faculty member discussed the answer to make the students aware of the correct answer.

**Committee Members:**
Prof. Kiran Somwanshi, Coordinator
Dr. Makarand Shahade, Convener

**Total No. of Student Benefited:**

55 students participated from the Third Year B. Tech Computer Engineering Department.

Percentage of Students participated : 80.88%

**Learning Outcomes of Activity:**
The students were able to improve their level of compiler parser, vocabulary, analytical skills, and memory.

**Pre-implementation Reflection:**

- Few students found it difficult to complete the quiz
- Students just might not have the necessary knowledge to complete Quiz mentimeter

**Post Implementation reflection:**

- The Quiz Mentimeter activity was very interesting and students were able to comapre the level of Bottomup parser .
- Vocabulary of the terms related to compiler Bottom up parser is improved.
- Student's understanding of basic compiler construction concepts is improved.
- This activity helps to test the level of understanding of the students.

| Learning Outcomes/ Program Outcomes | PO1 | PO2 | PO3 | PO9 | PO10 | PO12 |
|---|---|---|---|---|---|---|
| *LO1:* To Define compiler and To Understand the Language Processing System. | 2 | 2 | 2 | 2 | 1 | 2 |

POs Mapped: PO1, PO2, PO3, PO10, PO12

**JUSTIFICATION FOR MAPPING**

| PO/PSO MAPPED | JUSTIFICATION |
|---|---|
| PO1 | Students will be able to understand the concept of characteristics of compiler |
| PO2 | Students will be able to choose the appropriate level of bottom up parser of compiler construction while approaching the problem. |
| PO3 | Students will be able to level of Bottom parser while compiler construction. |
| PO10 | Students communication skills will be improved as they discuss the answers with peers |
| PO12 | The problem-solving skill earned through this activity helps the students in motivating life long learning. |

PO Attainment:

Rubrics for Attainment:

| Attainment Level | Description |
|---|---|
| Level 1 : Low | 60% of students scoring more than set attainment level in the Poll. |
| Level 2 : Medium | 70% of students scoring more than set attainment level in the Poll. |
| Level 3 : High | 80% of students scoring more than set attainment level in the Poll. |

**Overall Attainment: Level 3(high)**

**PO's Attained:** PO1, PO2, PO3, PO10, PO12

**References:** **https://puzzlemaker.discoveryeducation.com/criss-cross**

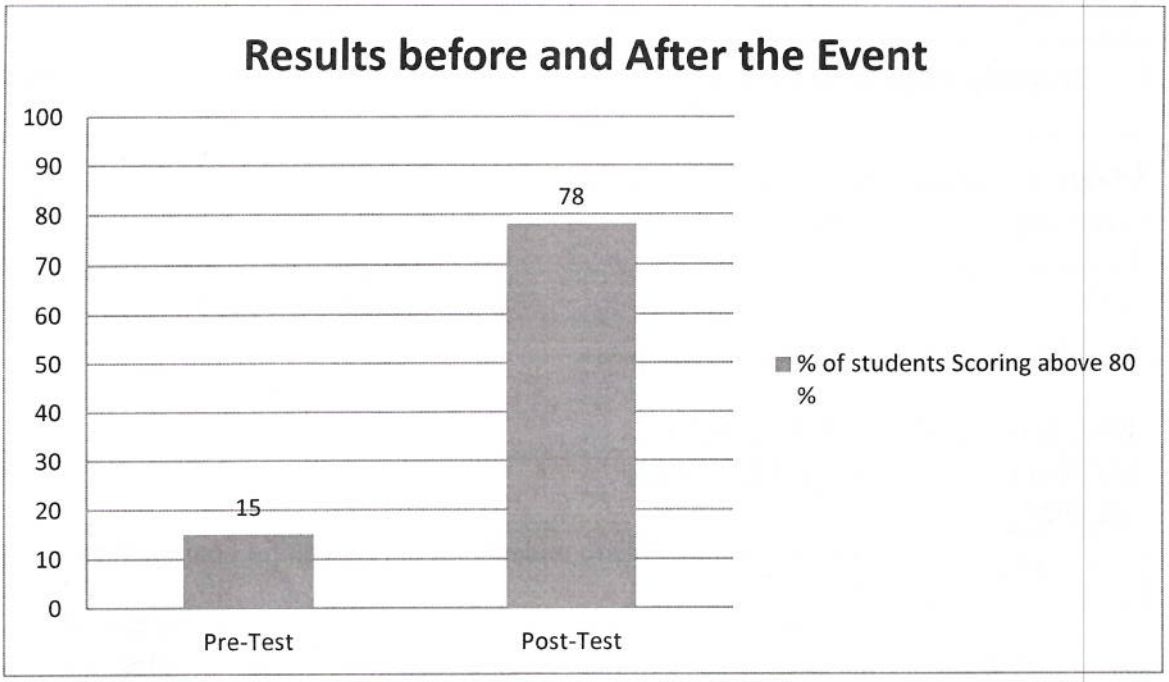



**Fig. PreTest and PostTest Poll Before & After of Event**

**Prof.Kiran Somwanshi**
**Event Coordinator**

**Dr. Makarand Shahade**
**HOD, Computer Engineering**

23-24 (21)

Shri Vile Parle Kelavani Mandal's

# Institute of Technology, Dhule

Approved by AICTE & Affiliated to DBATU

**DEPARTMENT OF COMPUTER ENGINEERING**

**A.Y 2023-24**

| | | |
|---|---|---|
| **Name of Event** | : | **INNOVATIVE PRACTICES** |
| **Dates** | : | **13th April 2024** |
| **Time** | : | **10:00 to 11:00 am** |
| **Venue** | : | **Class room : 208** |
| **Course Code & Title** | : | **BTHM401 Constitution of India** |
| **Learning Strategy** | : | **BRAIN STORMING** |
| **Recourse person** | : | **Prof. Amirkhan Pinjari** |

**Objectives :**

- Brainstorming is a problem-solving activity where students build on or develop higher order thinking skills. Encourages creative thought.
- Brainstorming encourages students to think creatively, encouraging all students to share their ideas, no matter how far "out there" they may seem.
- A key goal of brainstorming is **to encourage the free flow of ideas without judgment or critique**.

- **Activity Details/Rules:**
  1. The class will be divided into different groups.
  2. Each group has to come forward and select the topic randomly.
  3. The students will be not allowed to use any type of electronic device such as mobile, laptop.
  4. Each group will present the solution based on the topic allotted.
  5. The students are free to use any language.
  6. Finally, the group has to perform before the Evaluators.

- **Committee Members:**
  **Coordinator**: Prof. Amirkhan Pinjari
  **Convener:** Dr. Makarand Shahade
  **Student Coordinators**: SY students

**Total No. of Student Benefited:**

58 students participated from S.Y. B. Tech Computer Engineering Department.

- **Outcome of Activity:**
  1. Students will be able to Analyse and provide solutions.
  2. effective presentation and communication skills will improve.

**Learning Outcomes of Activity:**
The students were able to provide various solutions on the given topics.

| 7. Learning Outcomes/ Program Outcomes | PO6 | PO8 | PO9 | PO10 | PO12 |
|---|---|---|---|---|---|
| ***LO4:*** The students will be able to analyze Topic and give solution on the topics accordingly. | 2 | 1 | 1 | 1 | 2 |

**Pre-implementation Reflection:**

- Some students were not willing to participate which was actual necessary for the execution of activity.
- Less number of students was involved in the activity.

**Post Implementation reflection:**

- Students were able to Analyze and create solution on topics given.
- All the group demonstrate solution for topic and enjoyed.
- Students' feedback reflected that they have understood the concepts.

POs Mapped:

**JUSTIFICATION FOR MAPPING**

| PO MAPPED | JUSTIFICATION |
|---|---|

| | |
|---|---|
| PO6 | Student will **Apply** the knowledge of various acts of fundamental rights to assess in societal, health, safety, legal and cultural issues |
| PO8 | Student will **apply the** Ethical principle mention in Constitution, while demonstrating the ideas. |
| PO9 | Student will be Team member and leader of team for the while demonstrating their solution. |
| PO10 | Students will use effective communication on activities with the class, and with Team. |
| PO12 | Student can solve the any Problem using various Brainstorming and Examine the best suitable solution for given problem. |

PO Attainment:.

Rubrics for Attainment:

| Attainment Level | Description |
|---|---|
| Level 1 : Low | 60% of students scoring more than set attainment level in the Poll. |
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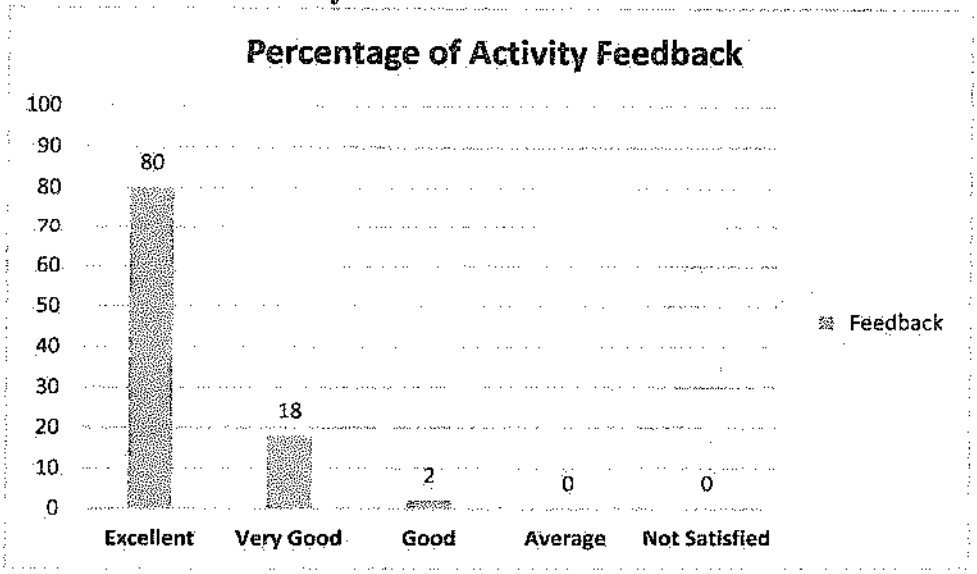
| Level 3 : High | 80% of students scoring more than set attainment level in the Poll. |

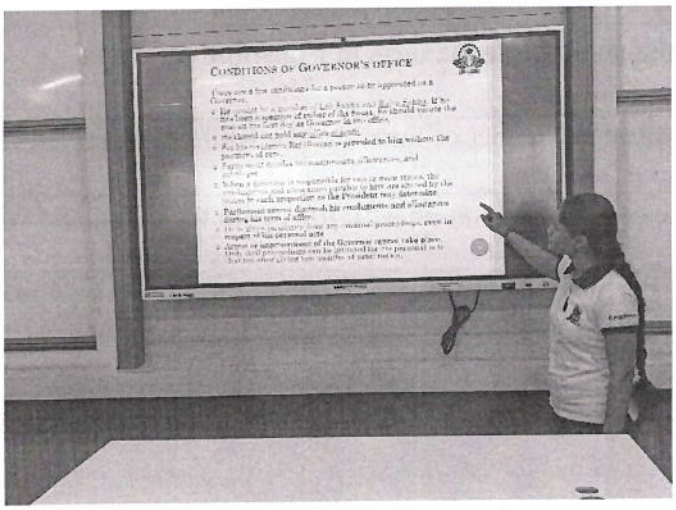
**Overall Attainment: Level 3(high)**

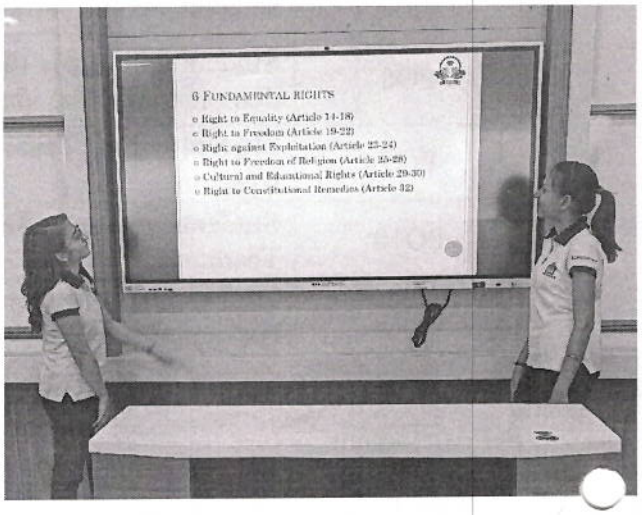
**PO's Attained:** PO6, PO8, PO9, PO10, PO12

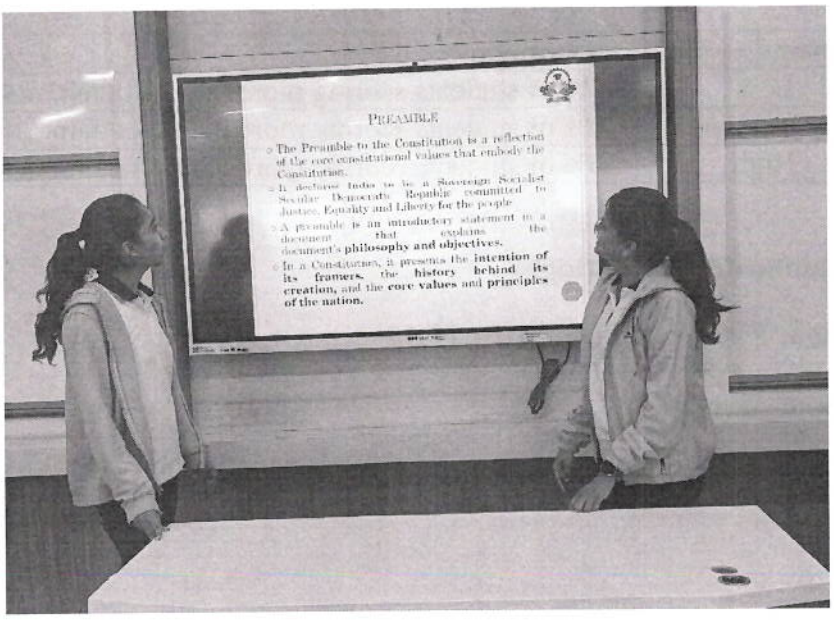
- **Feedback of Activity**



**Photographs of Event:**




**Prof. Amirkhan Pinjari**
**Event Coordinator**

Shri Vile Parle Kelavani Mandal's Institute of Technology DHULE

**Dr. Makarand Shahade**
**HOD, Computer Engineering**

23-24 (22)

Shri Vile Parle Kelavani Mandal's

# Institute of Technology, Dhule

Approved by AICTE & Affiliated to DBATU

## DEPARTMENT OF COMPUTER ENGINEERING

A.Y 2023-24

| | | |
|---|---|---|
| **Name of Event** | : | **INNOVATIVE PRACTICES** |
| **Dates** | : | **15 April 2024** |
| **Time** | : | **10.00 am** |
| **Venue** | : | **Classroom: 209** |
| **Course Code & Title** | : | **BTCOC604 Internet of Things** |
| **Learning Strategy** | : | **Animation** |
| **Topic** | : | **MQTT** |

**Animation:**

Animation has emerged as a powerful tool for enhancing the learning experience across various the learners. Animation benefits the learner to visualize the abstract concepts, to demonstrate execution, simulating real-word applications and enhance motivation for learning more complex subjects

**The benefit of the Animation:**

- Animated videos are an effective way to communicate information.
- Animating your infographics invites audiences to have a deeper understanding.
- A lot of information can be communicated visually in an animation.
- Animation deepens visual understanding much more than traditional diagrams.

**Goal:**

The goal of introducing innovative practice animation can be multifaceted, depending on the specific context.

**Reason for choosing the particular topic (Method):**

The sample topics selected under the animation among the one of the topic is MQTT.

**How we implemented Animation as instructional material :**

- The concept deliverd to the students through animation.

- Due to animation the Publish-Subscribe model easily understood.
- The message delivery from publisher to subscriber explained through topics through animations.

**Committee Members:** Prof. Mayuri Kulkarni, Coordinator
Dr. Makarand Shahade, Convener

**Total No. of Student Benefited:**

64 students participated from the Third Year B. Tech Computer Engineering Department.

**Learning Outcomes of Activity:**
The students were able to improve their concepts on message delivery using Publish-Subscribe model.

**Pre-implementation Reflection:**

- Students just might not have the necessary knowledge about topics and message transfer using Pub-Sub model.

**Post Implementation reflection:**

- Students found that animation on topic enhance their learning skills.
- Students understood the cocepts as PUB,SUB and topic.
- This activity helps to test the level of understanding of the students.

| Learning Outcomes/ Program Outcomes | PO1 | PO12 | PSO1 | PSO2 |
|---|---|---|---|---|
| TLO5 : To discuss different protocols in IoT | 1 | 1 | 1 | 1 |

POs Mapped: PO1,PO12,PSO1,PSO2

**JUSTIFICATION FOR MAPPING**

| PO/PSO MAPPED | JUSTIFICATION |
|---|---|
| PO1 | Apply the knowledge of Publish-Subscribe model to transfer message using MQTT. |
| PO12 | Ability to recognize publish-subscribe model for real time applications. |
| PSO1 | Student ability to analyze message transfer using MQTT. |
| PSO2 | Students will provide the solution to real world problem using MQTT |

PO Attainment:

Rubrics for Attainment:

| Attainment Level | Description |
|---|---|
| Level 1 : Low | 60% of students scoring more than set attainment level in the Poll. |
| Level 2 : Medium | 70% of students scoring more than set attainment level in the Poll. |
| Level 3 : High | 80% of students scoring more than set attainment level in the Poll.. |

**Overall Attainment: Level 3(high)**

**PO's Attained:** PO1,PO12,PSO1,PSO2

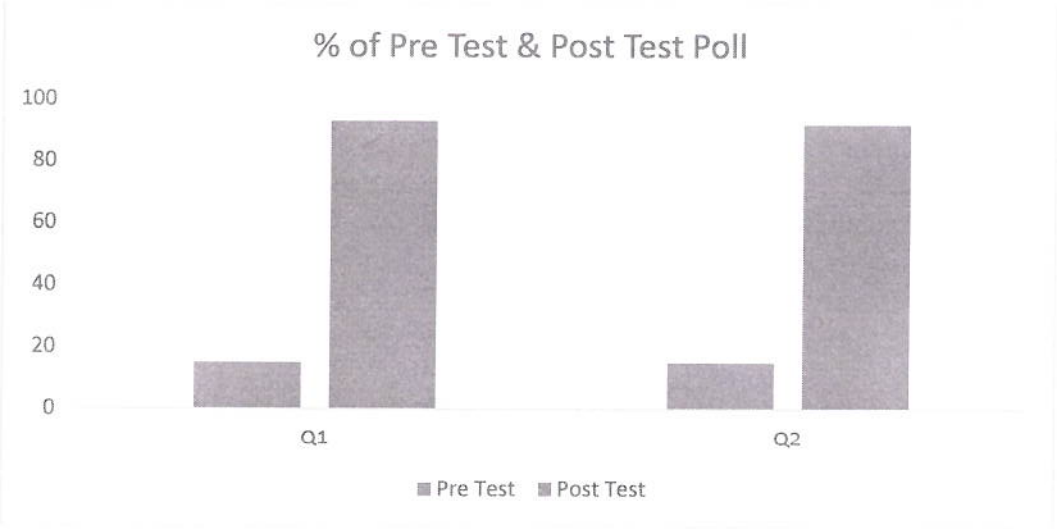
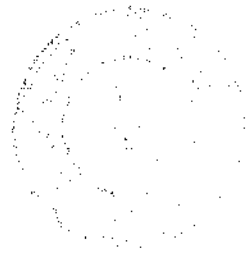



**Fig. PreTest and PostTest Poll Before & After showing Animation**

**Prof. Mayuri Kulkarni**
**Course Coordinator**

Shri Vile Parle Kelavani Mandal's Institute of Technology DHULE

**Dr. Makarand Shahade**
**HOD, Computer Engineering**



Shri Vile Parle Kelavani Mandal's

# Institute of Technology, Dhule

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## DEPARTMENT OF COMPUTER ENGINEERING

A.Y 2023-24

| | | |
|---|---|---|
| **Name of Event** | : | **INNOVATIVE PRACTICES** |
| **Dates** | : | **15th April 2024** |
| **Time** | : | **10:00 AM** |
| **Venue** | : | **Class room : 208** |
| **Course Code & Title** | : | **BTCOC402 Operating System** |
| **Learning Strategy** | : | **Role Play** |
| **Topic** | : | **CPU Scheduling Algorithms** |

**Role play:**
Role play encourages participation among passive learners, adds dynamism to the classroom and promotes the retention of material.

**Benefit of the Role play:**

- Students immediately apply content in a relevant, real world context.
- Students can transcend and think beyond the confines of the classroom setting.
- Students see the relevance of the content for handling real world situations.
- The instructor and students receive immediate feedback with regard to student understanding of the content.
- Students engage in higher order thinking and learn content in a deeper way.
- Instructors can create useful scenarios when setting the parameters of the role play whenreal scenarios or contexts might not be readily available.

**Course Outcome:**
***CO2:*** *To Illustrate concepts of Process as well as Thread Management along with Implement concepts of CPU Scheduling algorithms.*

**Goal:**
The students will be able to apply various scheduling algorithms.

**Reason for choosing the particular topic (Method):**
Students are asked to "act out" so they get a better idea of the concepts and theories being

discussed. Role play helps the students to visualize the functioning of CPU scheduling algorithms. In addition, role play is used to empower, engage, and stimulate a classroom by putting students at the Centre of the learning process.

**How we implemented Role play:**

- The faculty has discussed the concept of FCFS and SJF on the previous day and askedwillingness from the students to role play the concepts on the next day.
- The students formed groups and prepared for the role play.
- The students enacted CPU scheduling algorithms like FCFS and SJF.
- Three processes with different burst time and arrival time are to be executed by theprocessor using FCFS and SJF.
- Students have taken the role of processes and processor.

**Committee Members:** Dr. Makarand Shahade, Coordinator and Convener

**Total No. of Student Benefited:**

45 students participated from S.Y. B. Tech Computer Engineering Department.

**Learning Outcomes of Activity:**
The students were able to demonstrate various scheduling algorithms.

**Pre-implementation Reflection:**

- Some students were not willing to participate which necessary for the execution of therole is playing activity.
- Less number of students was involved in the activity.

**Post Implementation reflection:**

- Students were able to identify and apply the working of scheduling algorithm
- All the students enjoyed the activity.
- Students' feedback reflected that they have understood the concept.
- A scheduler can be added in the next role play in addition to the processor and processesto depict closer to the real scenario in CPU scheduling algorithms.

| Learning Outcomes/ Program Outcomes | PO1 | PO2 | PO5 | PO9 | PO10 | PO12 | PSO1 | PSO2 |
|---|---|---|---|---|---|---|---|---|
| ***LO4:*** The students will be able to Implement and Examine concepts of CPU Scheduling algorithms. | 2 | 2 | 1 | 2 | 1 | 2 | 2 | 2 |

POs Mapped: PO1, PO2, PO5, PO9, PO10, PO12, PSO1, PSO2

**JUSTIFICATION FOR MAPPING**

| PO/PSO MAPPED | JUSTIFICATION |
|---|---|
| PO1 | Student will **Apply** the knowledge of mathematics to solve the CPU Scheduling algorithms |
| PO2 | Student will **analysis** the CPU Scheduling Problem |
| PO3 | Student will **Draw** Grant Chart for CPU Scheduling Problem |
| PO5 | Students will **use modern IDE tools like NetBeans, Code Blocks, Notebook to solve CPU Scheduling problems** |
| PO9 | Students teams demonstrate how to solve the CPU Scheduling algorithms using role play |
| PO10 | Students Can Communicate working of CPU Scheduling algorithms using role play |
| PO12 | Student can **solve the** CPU Scheduling Problem using various algorithms and Examine the best algorithms for given set of data |
| PSO1 | Student ability to analyze and implement the CPU Scheduling algorithms |
| PSO2 | Students will provide the solution to **CPU Scheduling problems by applying standard CPU Scheduling algorithms** |

PO Attainment:

Rubrics for Attainment:

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**References:**

https://serc.carleton.edu/introgeo/roleplaying/whatis.html

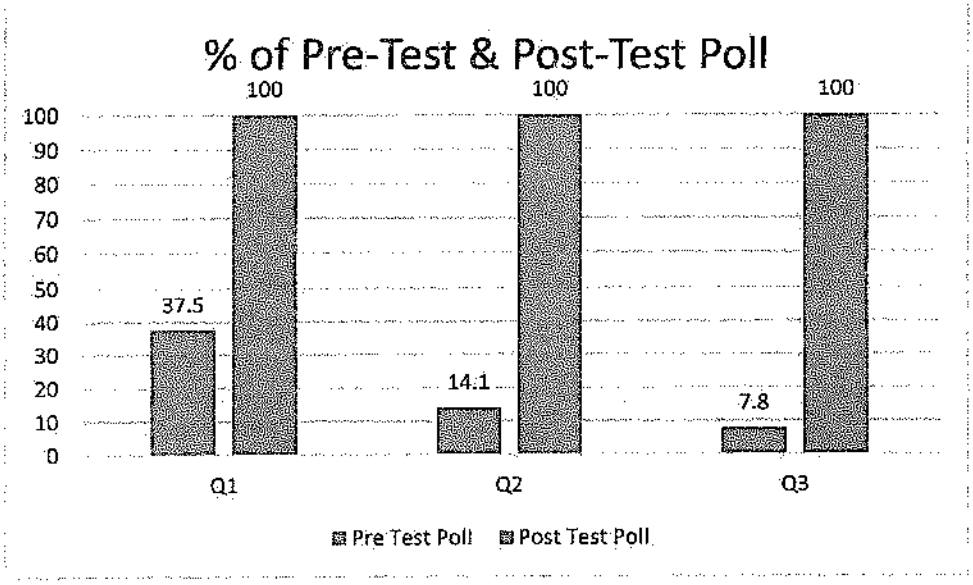


**Fig. Pre-Test and Post-Test Poll Before & After of Event**

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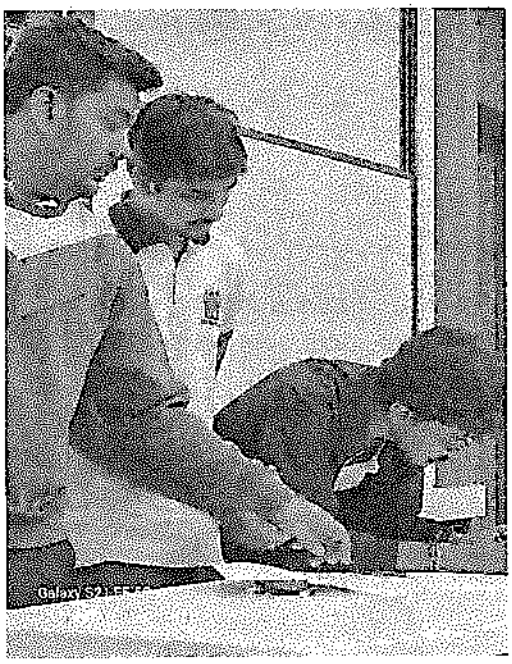

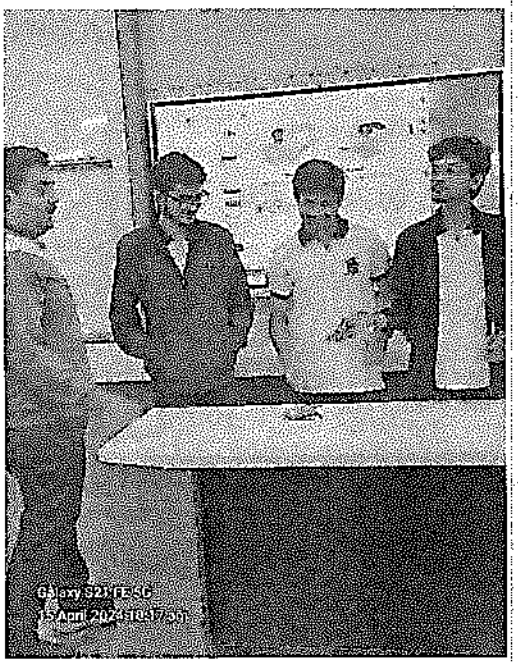

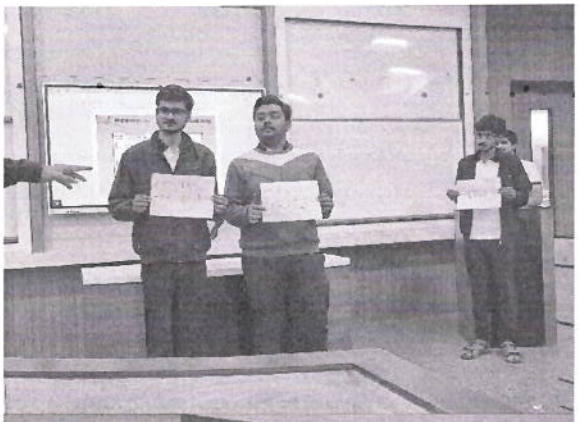

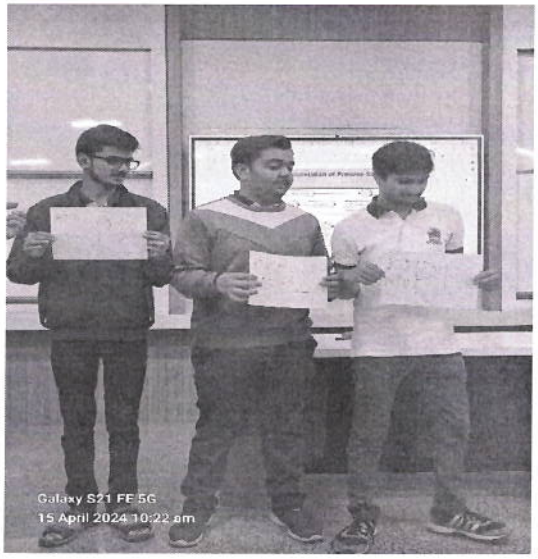


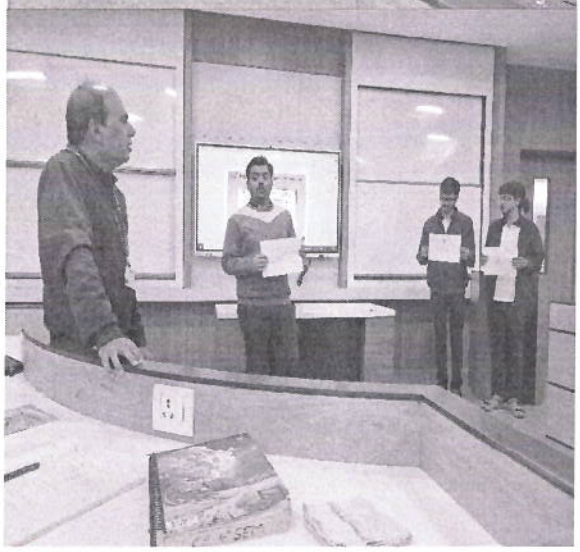

**Dr. Makarand Shahade**
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Shri Vile Parle Kelavani Mandal's DHULE Institute of Technology

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